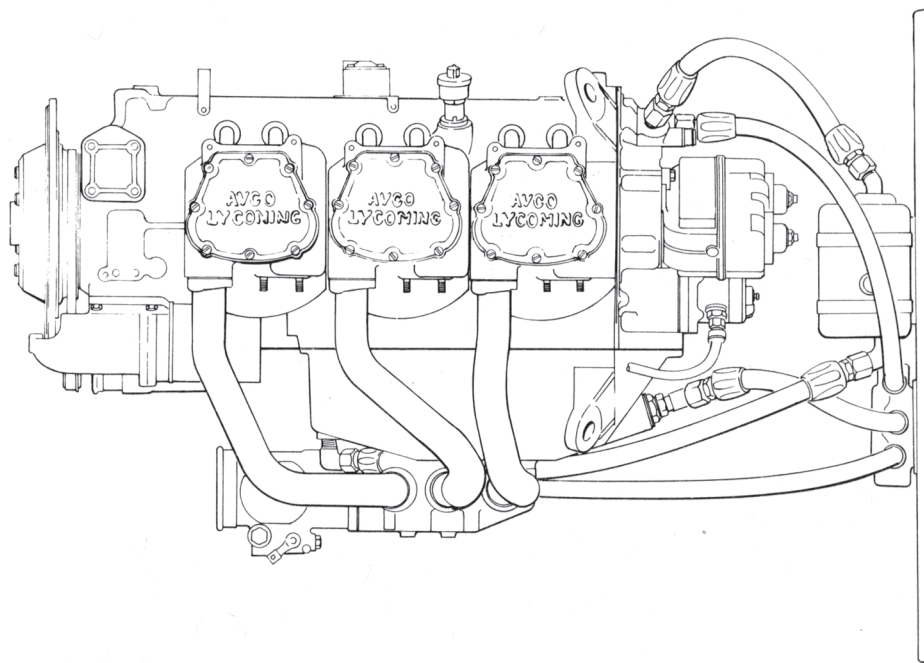


# Lycoming Aircraft Engines Parts Catalog



## **AEIO-540-L1B5D** **Wide Cylinder Flange Model**

***LYCOMING***



## INTRODUCTION

This illustrated parts catalog contains a complete parts listing for the Lycoming AEIO-540-L1B5D wide cylinder flange model aircraft engines.

Major assembly and sub-assembly parts of the engines are listed in the Group Assembly sections in the general sequence of engine build up.

A Service Kits section and Oversize and Undersize Parts List are included to aid in ordering parts as necessary during overhaul.

The Numerical Index is provided for convenience in finding parts when only the part number is known.

Parts coverage of Vendor Accessories used on Lycoming engines may be found in the appropriate Vendor's Parts Catalog. A list of these publications appear in the latest edition of Service Letter No. L114.

## NOTE

The illustrations, pictures and drawings shown in this publication are typical of the subject matter they portray.

*This catalog, when used in conjunction with the appropriate overhaul manual, shall be used for parts identification only. Under no circumstances shall this catalog be used as an assembly or installation document.*

Any reference in this document to a suppliers/parts manufacturers' product, by name, trademark, part number or other description is solely for the purposes of identification and does not indicate or infer that Lycoming accepts responsibility for quality control and/or airworthiness of parts which do not pass through the Lycoming quality control system.

## SERVICE BULLETINS, INSTRUCTIONS AND LETTERS

Although the information contained in this parts catalog is up-to-date at time of publication, users are urged to keep abreast of later information through all Lycoming distributors or from the factory by subscription. Consult the latest edition of Service Letter No. L114 for subscription information.

## HOW TO ORDER PARTS

In ordering parts for your engine, observe the following instructions which will expedite shipment of correct parts required without delay.

- a. Always specify the model and serial number of your engine.
- b. Always specify Part Number, Nomenclature and quantity required.

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Oversize and Undersize Parts Listing

PART NO.	DESCRIPTION	OVERSIZE									UNDERSIZE		
		P02 .002	P05 .005	P10 .010	P15 .015	P20 .020	P30 .030	P40 .040	P50 .050	M03 .003	M06 .006	M10 .010	
66670	BUSHING		X	X									
66796	INSERT			X									
69796	DOWEL		X										
71903	BUSHING, Counterweight	SEE LATEST EDITION OF SERVICE INSTRUCTION NO. 1143 FOR APPLICATION.											
72155-S	BUSHING		X	X	X	X							
73810	BUSHING	SEE LATEST EDITION OF SERVICE INSTRUCTION NO. 1142 FOR APPLICATION.											
73857	RING			X		X							
74241	RING			X									
74309	BEARING			X						X	X*	X	
75656-S	BUSHING		X	X	X	X							
75657-S	BUSHING		X	X		X							
78443	SEAL	SEE LATEST EDITION OF SERVICE INSTRUCTION NO. 1324 FOR APPLICATION.											
LW-11956-S	GUIDE	SEE LATEST EDITION OF SERVICE INSTRUCTION NO. 1256 FOR APPLICATION.											
LW-11958-S	GUIDE	SEE LATEST EDITION OF SERVICE INSTRUCTION NO. 1256 FOR APPLICATION.											
LW-12688	SEAT			X		X	X						
LW-13683	BEARING									X	X		
LW-13885	BEARING									X	X	X	
LW-14830	BEARING				X					X	X	X	
LW-15628	SEAL	SEE LATEST EDITION OF SERVICE INSTRUCTION NO. 1324 FOR APPLICATION.											
STD-2078	DOWEL	X	X	X	X								
16T19468	SEAT			X		X	X						

Studs available in P03, P07 and P12.

\* Also available in P10 oversize.

NOTE

When ordering oversize and undersize parts, be sure to specify the required oversize and undersize dimension along with the proper part number. For example, to order bearing LW-13885 in .003 undersize, order part number LW-13885-M3. Oversize code letter is "P" while undersize code letter is "M". These letters are then followed by the number designating the size in thousandths of an inch.

**CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP**  
 CRANKCASE ASSEMBLY

FIG. REF. 1	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	11F20020-D1	CRANKCASE ASSEMBLY	1
2	31C-12	STUD, 5/16-18 x 1-1/2 long (starter pad, rear)	2
3	31C-13	STUD, 5/16-18 x 1-5/8 long (starter pad, front)	1
4	38-13	STUD, 3/8-16 x 1-5/8 long (cylinder pad)	24
5	50-15	STUD, 1/2-20 x 1-7/8 long (cylinder pad)	12
6	38-22	STUD, 3/8-16 x 2-3/4 long (nose of case)	1
7	38D-17	STUD, 3/8-16 x 2-1/8 long (rear above cam)	1
8	38-16	STUD, 3/8-16 x 2.00 long (engine mount)	8
9	69796	DOWEL, Crankshaft (front bearing)	2
10	STD-514	DOWEL, 5/16 dia. x 1/2 long (accessory face)	2
11	STD-557	DOWEL, 1/2 dia. x 11/16 long (between halves)	2
12	72158	BUSHING, Governor drive idler shaft	1
13	STD-1339	PLUG, 1/16-27 pipe (governor pad)	1
14	1102	PLUG, 1/8 pipe (oil pressure)	1
15	31C-16	STUD, 5/16-18 x 2.00 long	4
	31C-17*	STUD, 5/16-18 x 2-1/8 long	4
	31C-18*	STUD, 5/16-18 x 2-1/4 long	4
16	73772	NOZZLE ASSY., Piston cooling	6
17	65007**	RETAINER, Shroud tube	12

\* Special stud length at governor pad.

\*\* Early crankcases used Item No. 17 retainer, P/N 65007, installed in shroud tube bosses. Later crankcases are machined as a product improvement to accept shroud tubes without retainers. This part is a service item only.

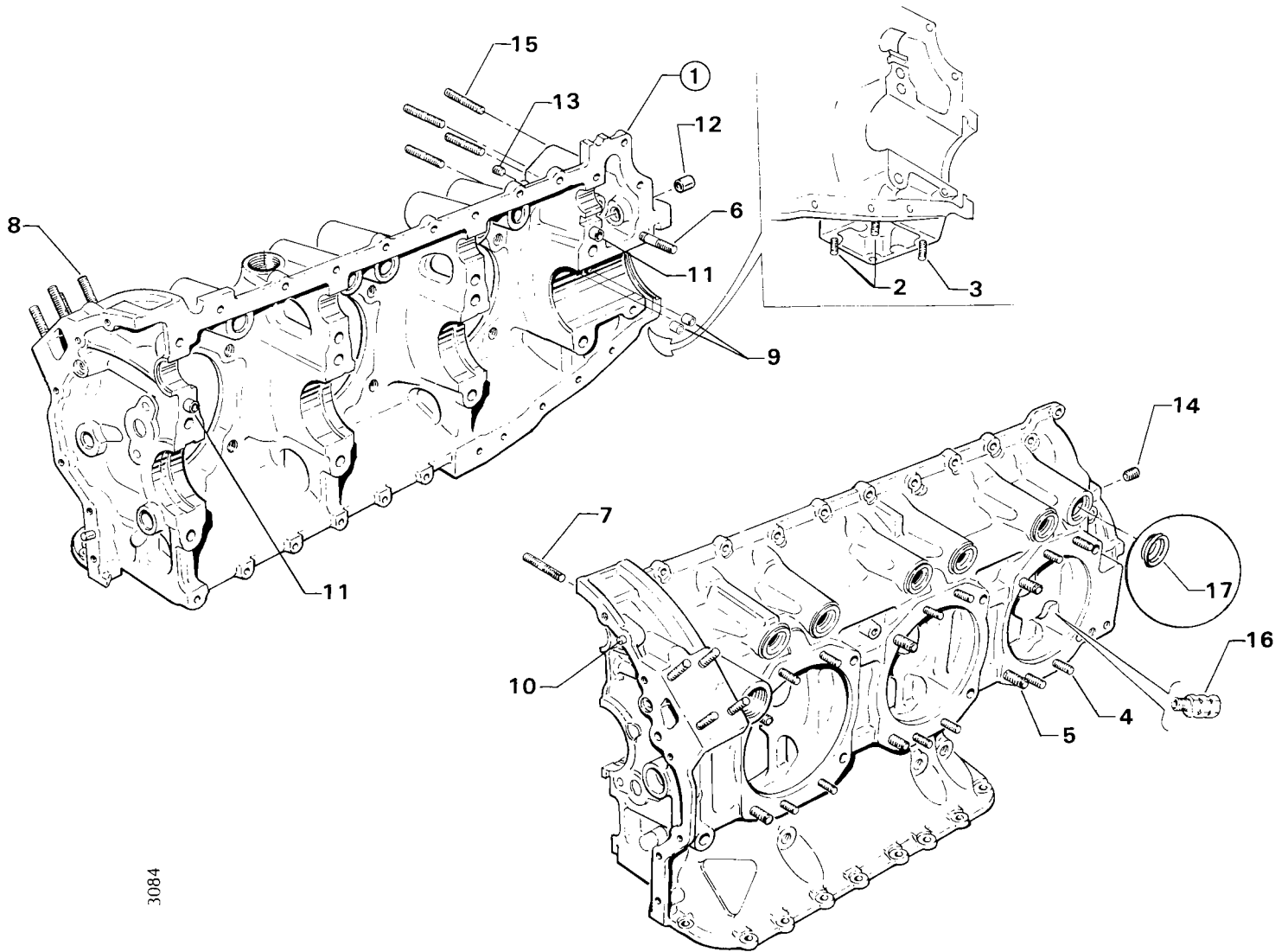


Figure 1. CRANKCASE ASSEMBLY

**CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP**  
 OIL LEVEL GAGE AND ENGINE MOUNTING BRACKETS

<b>FIG. REF. 2</b>	<b>PART NUMBER</b>	<b>DESCRIPTION</b>	<b>QUANTITY PER ASSEMBLY</b>
1	70457	GASKET, Oil filler extension;	1
2	75675	EXTENSION, Oil filler (short)	1
3	74065	''O'' RING, Oil level gage	1
4	LW-14799	GAGE ASSY., Oil level	1
	LW-16783-4	GAGE ASSY., Oil level	1
5	72306	BRACKET, Engine mounting (dynafocal)	4
6	STD-33	WASHER, 3/8 plain	16
7	STD-678	WASHER, 3/8 lock, internal teeth	16
8	STD-596	NUT, 3/8-24 plain	16



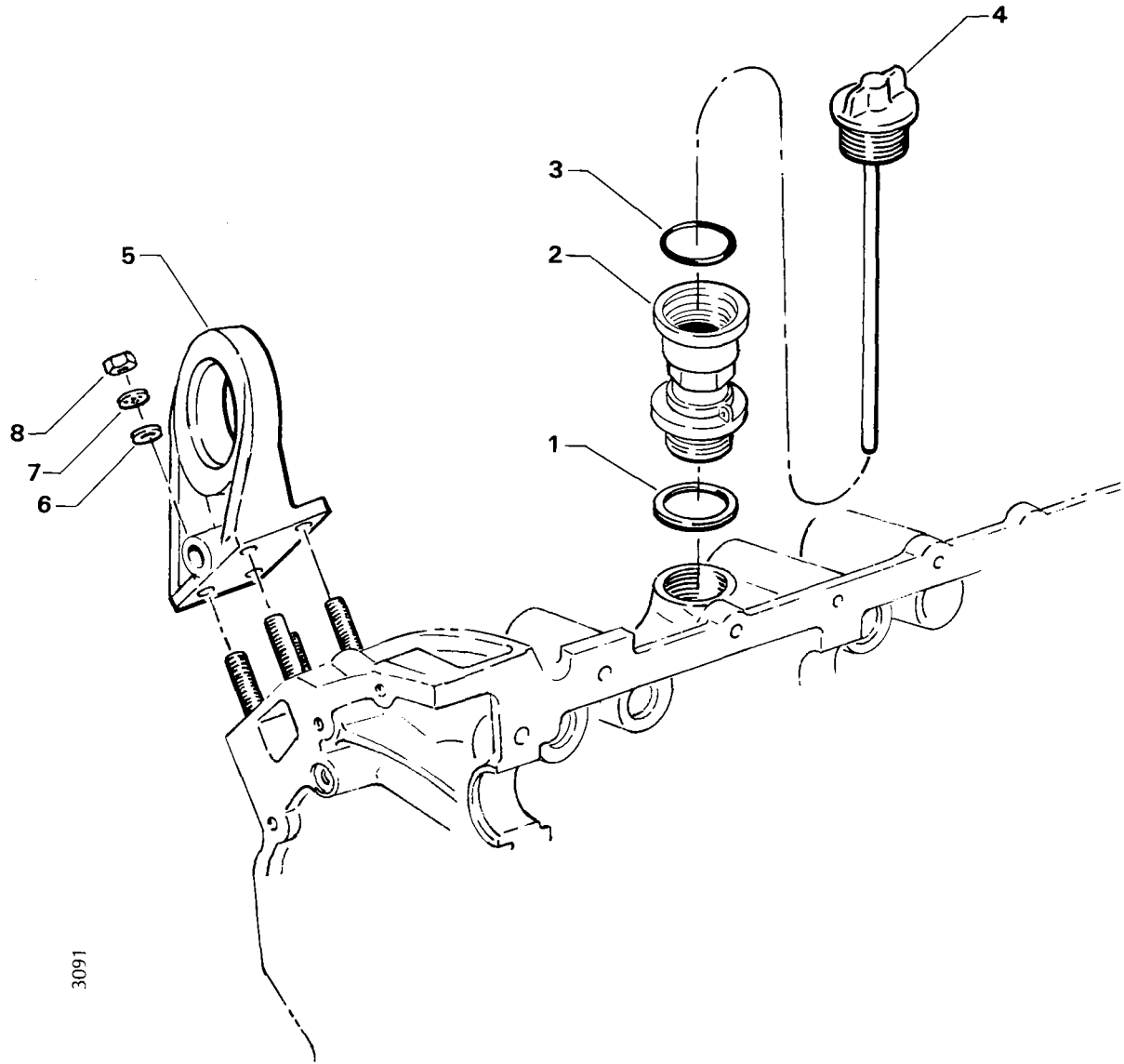
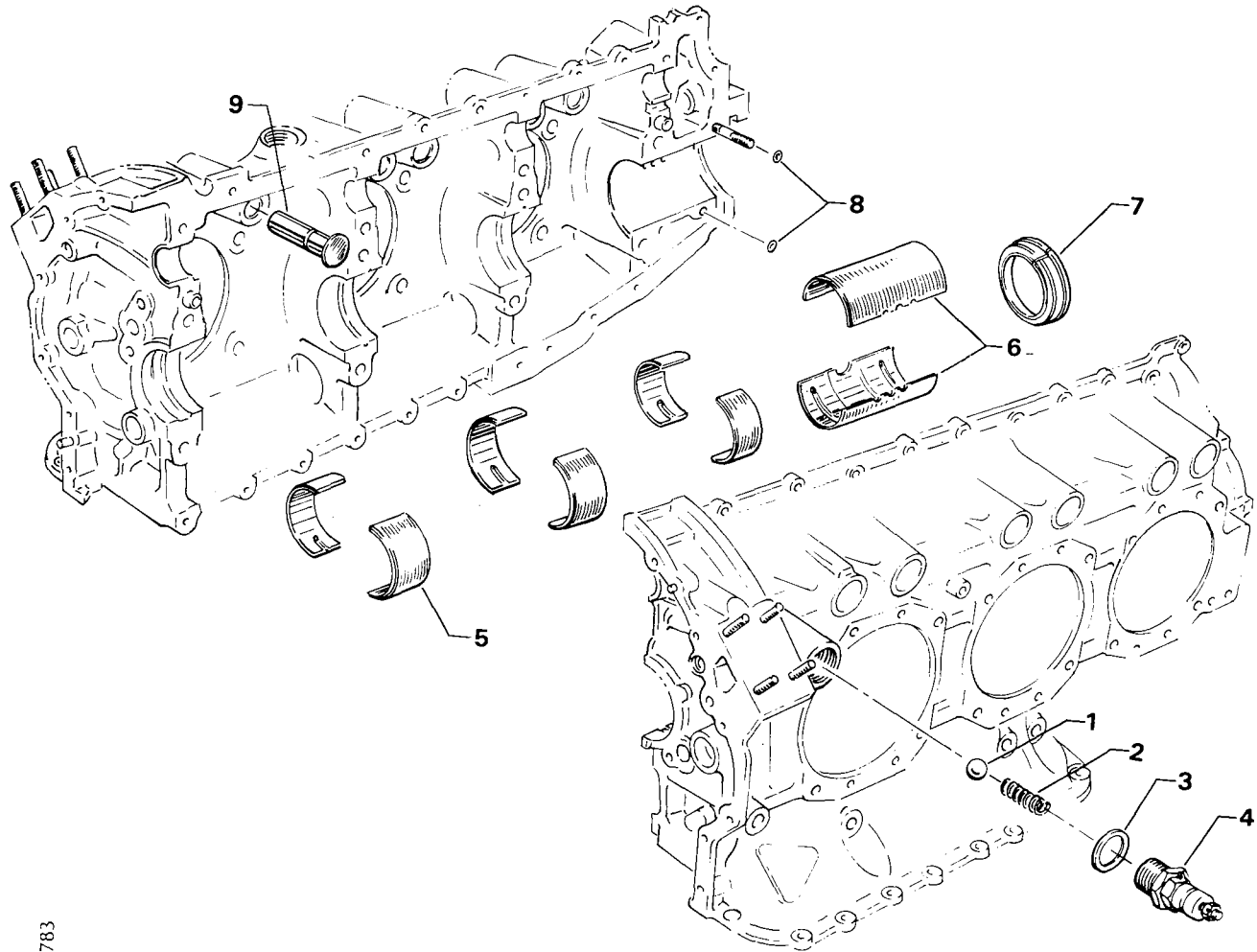


Figure 2. OIL LEVEL GAGE AND ENGINE MOUNTING BRACKETS

**CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP**  
 CRANKCASE RELATED PARTS

<b>FIG. REF. 3</b>	<b>PART NUMBER</b>	<b>DESCRIPTION</b>	<b>QUANTITY PER ASSEMBLY</b>
1	1028-B	BALL, 11/16 dia.	1
2	61084*	SPRING, Oil pressure relief valve	1
	LW-11713*	SPRING, Oil pressure relief valve	1
	68668*	SPRING, Oil pressure relief valve	1
	77467*	SPRING, Oil pressure relief valve	1
	LW-18085*	SPRING, Oil pressure relief valve	1
3	STD-1045	GASKET, 1-1/4 I.D. x 1-1/2 O.D. x 3/32 annular	1
4	77808	VALVE ASSY., Oil pressure relief, adj.	1
5	LW-13683	BEARING, Crankshaft	6
	LW-14830	BEARING, Crankshaft (alternate)	6
6	LW-13885	BEARING, Crankshaft, front	2
7	LW-15628**	SEAL, Crankshaft oil, solid	1
	78443**	SEAL, Crankshaft oil, split	1
8	72091	RING, Oil seal, 23/64 I.D. x 7/64 dia. section	2
9	72877	BODY, Hydraulic tappet	12

- \* Select spring to give a minimum of three threads exposed on adjusting screw to allow field adjustment. Reference latest revision of SSP-1776, Part 1 for spring identification.
- \*\* Refer to latest edition of Service Instruction No. 1324 for installation.



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Figure 3. CRANKCASE RELATED PARTS

### CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP

#### CRANKSHAFT AND RELATED PARTS

FIG. REF. 4	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	LW-17783	CRANKSHAFT AND COUNTERWEIGHT ASSEMBLY	1
2	LW-17758	CRANKSHAFT AND PLUG ASSEMBLY	1
3	STD-1211	PLUG, 2.00 dia. expansion	1
4	73810	BUSHING, Crankshaft dynamic counterweight	4
5	60945	PLUG, 1-1/4 dia.	1
6	75656-S	BUSHING, Propeller flange, long	4
7	72155-S	BUSHING, Propeller flange, short	1
8	75657-S	BUSHING, Propeller flange, indexing	1
9	STD-2078	DOWEL, 3/8 O.D. x 1/2 long	1
10	LW-19210*	COUNTERWEIGHT ASSEMBLY	2
11	71903	BUSHING, Dynamic counterweight	8
12	76788*	ROLLER, Dynamic counterweight, 6.3 order	2
13	73648*	ROLLER, Dynamic counterweight, 5.1 order	2
14	LW-14820	RING, Internal retaining	8
15	71907	WASHER, Dynamic counterweight	8
16	13S19649**	GEAR, Crankshaft	1
17	LW-10332	LOCKPLATE, Crankshaft gear	1
18	AN8-14A	BOLT, 1/2-20 x 1-19/32 long	1
19	77579	SUPPORT ASSY., Starter ring gear, 12/14 pitch	1
20	72566	GEAR, Starter ring, 12/14 pitch	1

\* See latest edition of  
 \*\* See latest edition of

Lycoming Service Instruction No. 1012 for proper counterweight and roller location.  
 Lycoming Service Bulletin No. 475 for proper installation.

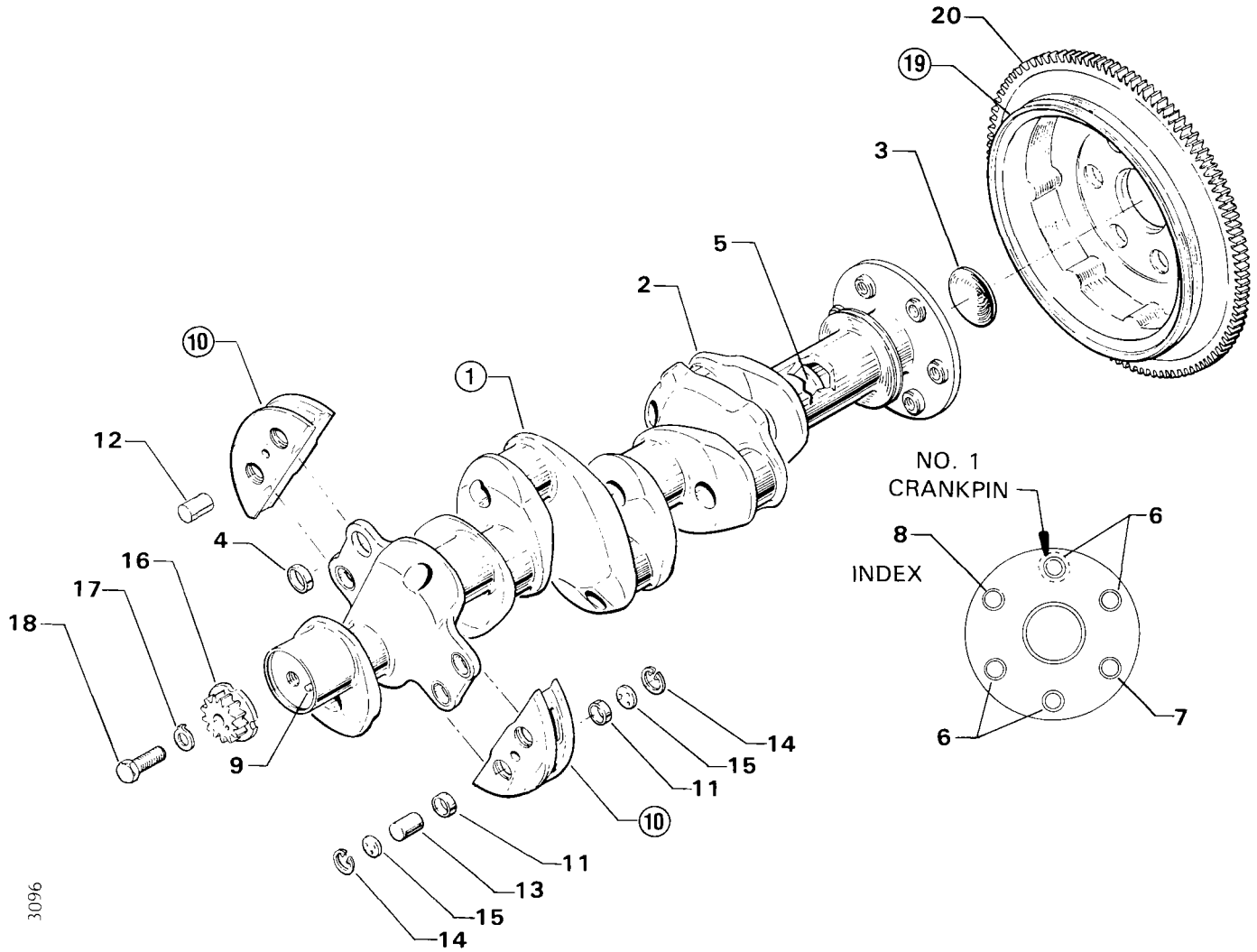
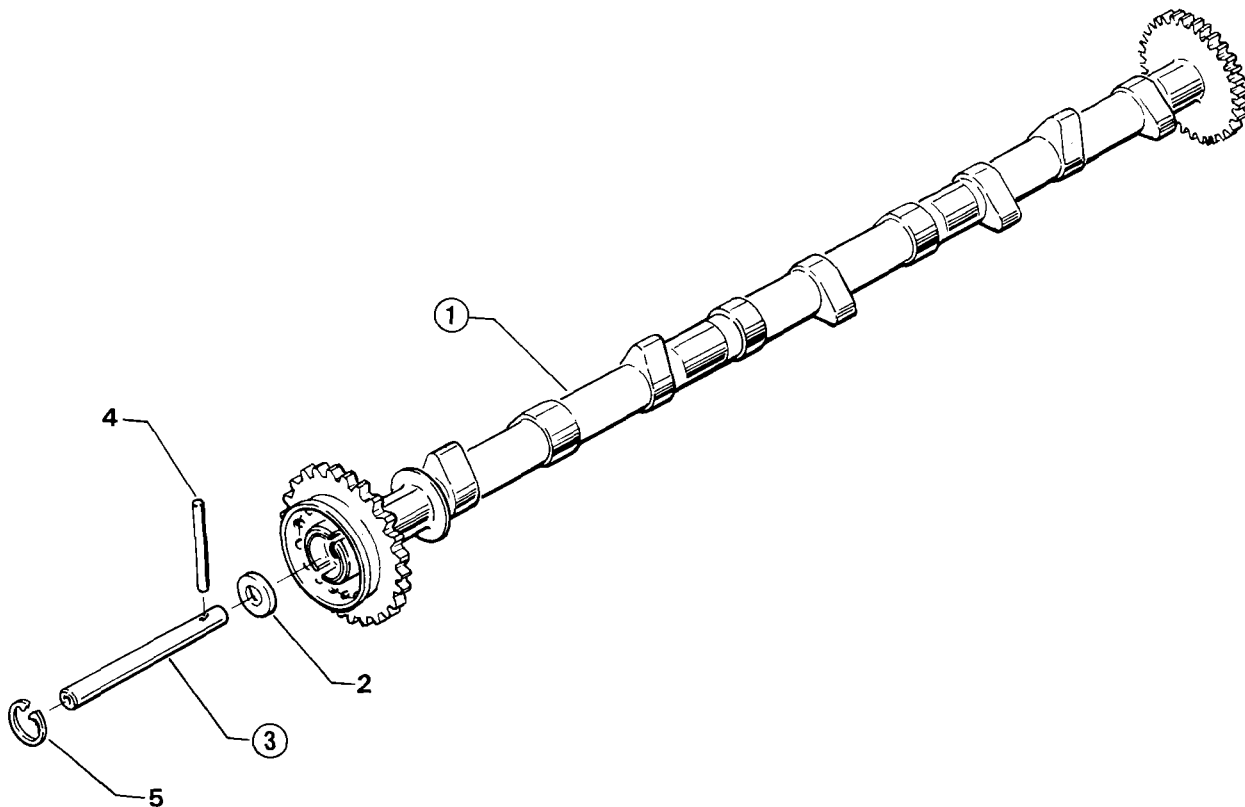


Figure 4. CRANKSHAFT AND RELATED PARTS

**CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP**  
 CAMSHAFT ASSEMBLY

FIG. REF. 5	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	LW-19340	CAMSHAFT ASSEMBLY	1
2	76118	SPACER, Tachometer shaft centering	1
3	76155	SHAFT ASSY., Tachometer	1
4	LW-18667	PIN, 3/16 dia. x 2-21/64 long	1
5	MS16625-1081	RING, Internal retaining	1



3095

**Figure 5. CAMSHAFT ASSEMBLY**

CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP  
 CRANKSHAFT AND FUEL PUMP IDLER GEARS

FIG. REF. 6	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	LW-10292	GEAR ASSY., Crankshaft idler, plain	1
2	LW-10299	SHAFT, Crankshaft idler gear	1
3	LW-10297	GEAR ASSY., Crankshaft idler (heavy)	1
4	LW-10325	SPACER, Idler shaft	1
5	LW-10324	GEAR ASSY., Fuel pump idler	1
6	LW-10299	SHAFT, Crankshaft idler gear	1
7	LW-10325	SPACER, Idler gear	1
8	LW-10329	SHAFTGEAR ASSY., Fuel pump drive	1
9	61166	THRUST BUTTON	1
10	69164	GASKET, Fuel pump adapter	1
11	69159	ADAPTER ASSY., Fuel pump drive	1
12	STD-1774	PIN, 1/8 dia. x 1/4 long	1
13	STD-213	SEAL, Oil, 3/4 I.D. x 1-3/8 O.D.	1

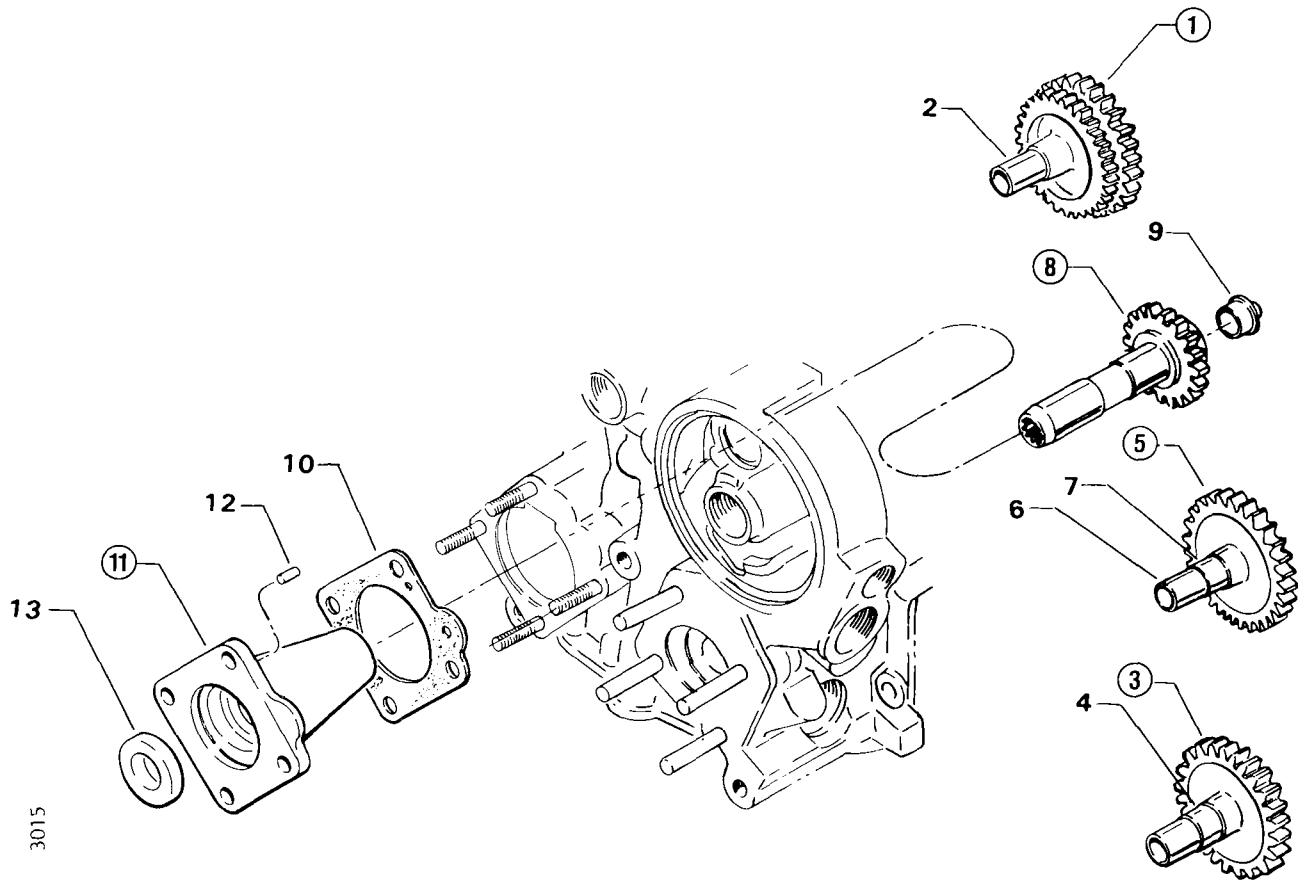
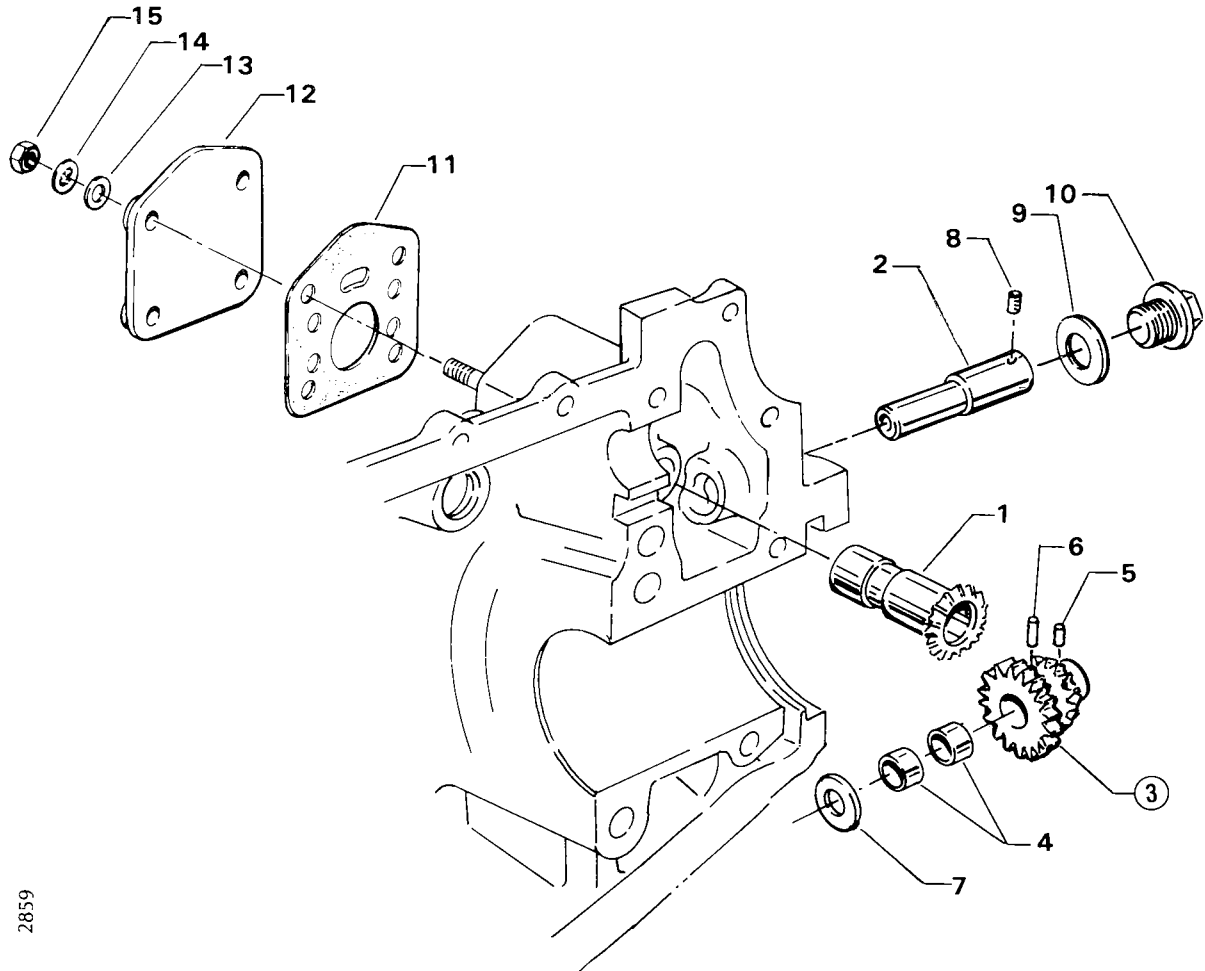


Figure 6. CRANKSHAFT AND FUEL PUMP IDLER GEARS

**CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP**  
 PROPELLER GOVERNOR DRIVE ASSEMBLY

<b>FIG. REF. 7</b>	<b>PART NUMBER</b>	<b>DESCRIPTION</b>	<b>QUANTITY PER ASSEMBLY</b>
1	LW-10442	GEAR, Propeller governor drive	1
2	LW-14021	SHAFT, Propeller governor idler gear	1
3	LW-10541	GEAR ASSY., Propeller governor idler	1
4	77872	BUSHING, Propeller governor idler gear	2
5	STD-19	DOWEL, 3/32 dia. x 7/32 long	1
6	STD-798	DOWEL, 3/32 dia. x 9/32 long	1
7	73249	WASHER, Thrust (.0585-.0595) thick	AR
	73250	WASHER, Thrust (.062-.063) thick	AR
	73251	WASHER, Thrust (.0655-.0665) thick	AR
	73252	WASHER, Thrust (.069-.070) thick	AR
8	AN565B1032H5	SET SCREW, No. 10-32 x 5/16 long	1
9	70455	GASKET, 25/32 I.D. x 1-1/8 O.D. x 1/16 thick	1
10	LW-13896	PLUG, 3/4-16, hex. hd.	1
11	72053	GASKET, Governor	1
12	72378	COVER, Governor drive	1
13	STD-35	WASHER, 5/16 plain (Woodward governor)	20
	STD-35	WASHER, 5/16 plain (AN governor)	4
14	STD-475	WASHER, 5/16 lock, internal teeth	4
15	STD-1410	NUT, 5/16-18 plain	4



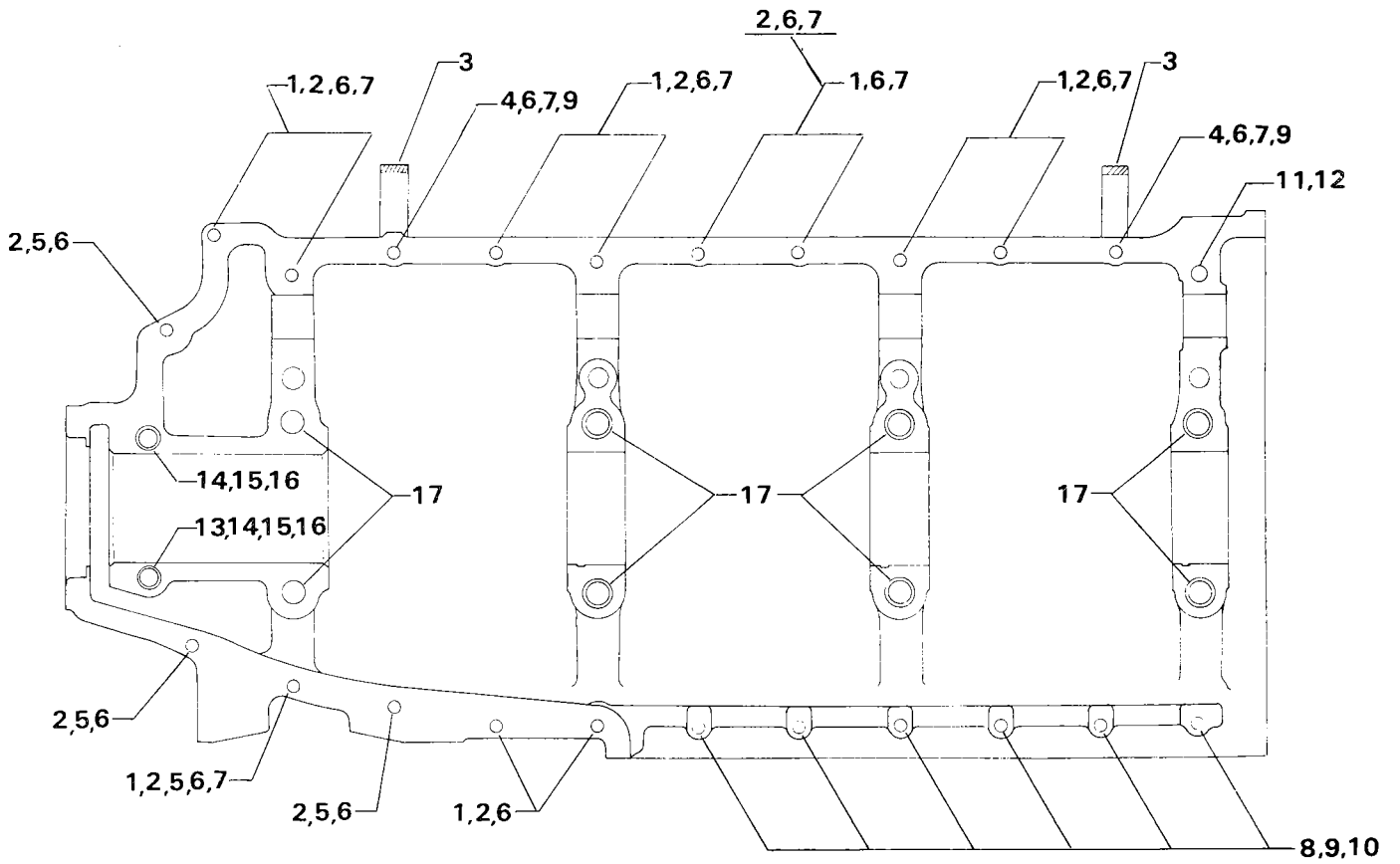


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**Figure 7. PROPELLER GOVERNOR DRIVE ASSEMBLY**

**CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP**  
 CRANKCASE ATTACHING PARTS

<b>FIG. REF. 8</b>	<b>PART NUMBER</b>	<b>DESCRIPTION</b>	<b>QUANTITY PER ASSEMBLY</b>
1	LW-25-1.50	BOLT, 1/4-20 x 1-1/2 long, hex. hd.	11
2	STD-8	WASHER, 1/4 plain	27
3	60803	STRAP, Lifting	2
4	LW-25-1.75	BOLT, 1/4-20 x 1-3/4 long, hex. hd.	2
5	LW-25-1.13	BOLT, 1/4-20 x 1-1/8 long, hex. hd.	4
6	STD-160	WASHER, 1/4 lock, internal teeth	16
7	STD-1411	NUT, 1/4-20 plain	12
8	LW-25S1.50	BOLT, 1/4-20 x 1-1/2 long, hex. hd., drive end	6
9	STD-8	WASHER, 1/4 plain (max. 18)	AR
10	STD-1409	NUT, 1/4-20 slotted shear	6
11	STD-33	WASHER, 3/8 plain	1
12	STD-872	NUT, 3/8-24 slotted	1
13	AN6-34A	BOLT, 3/8-24 x 3-1/2 long, hex. hd.	1
14	STD-33	WASHER, 3/8 plain	3
15	STD-678	WASHER, 3/8 lock, internal teeth	2
16	STD-596	NUT, 3/8-24 plain	2
17	76220	STUD, 1/2-20 x 10-45/64 long	8

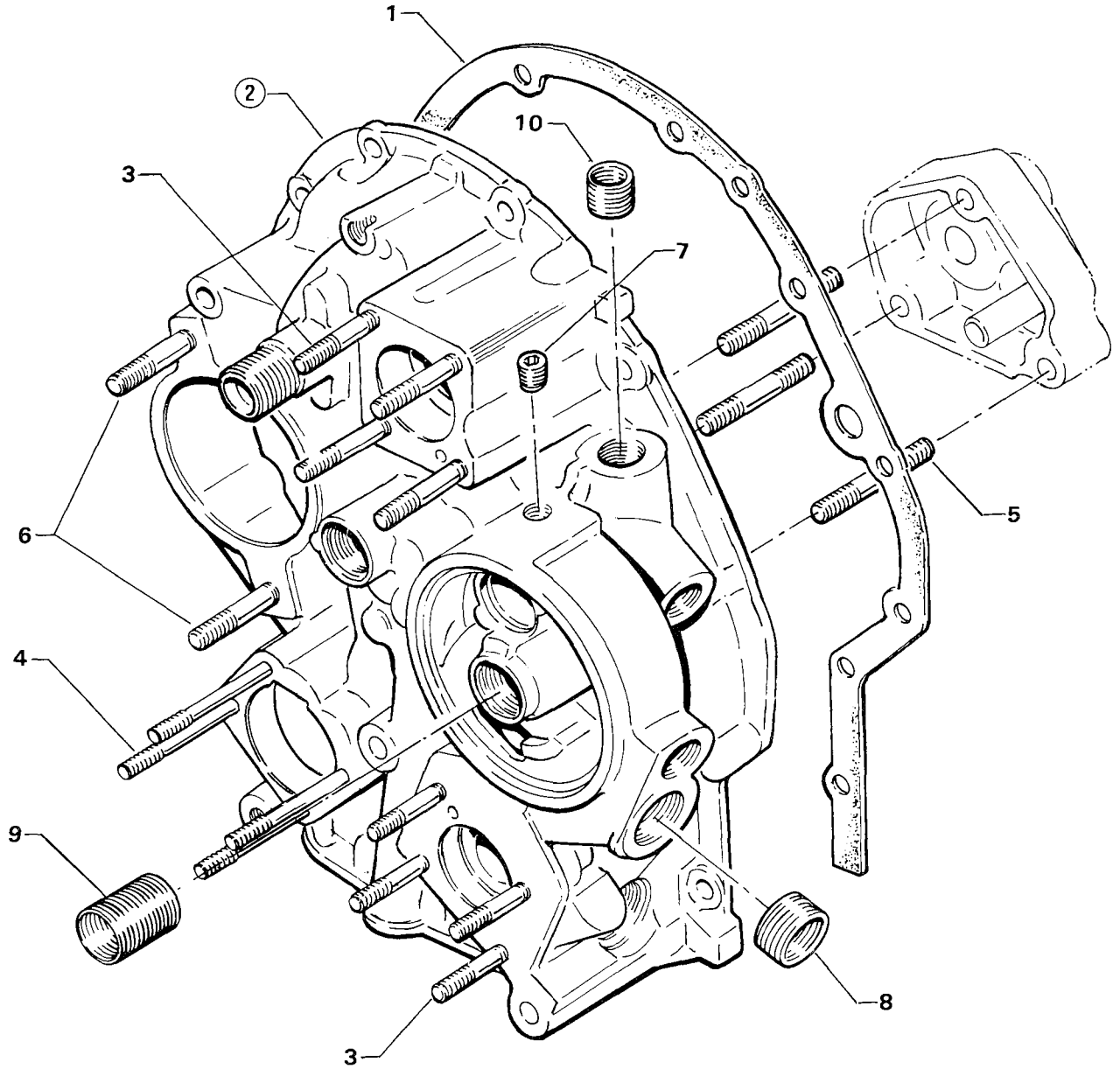


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Figure 8. CRANKCASE ATTACHING PARTS

**ACCESSORY HOUSING AND RELATED PARTS**  
 ACCESSORY HOUSING ASSEMBLY

<b>FIG. REF. 9</b>	<b>PART NUMBER</b>	<b>DESCRIPTION</b>	<b>QUANTITY PER ASSEMBLY</b>
1	73818	GASKET, Accessory housing 1	1
2	LW-10905	HOUSING ASSY., Accessory	1
3	25C-12	STUD, 1/4-20 x 1-1/2 long	8
4	31C-19	STUD, 5/16-18 x 2-3/8 long	4
5	31CD-20	STUD, 5/16-18 x 2-1/2 long, drilled	3
6	31C-13	STUD, 5/16-18 x 1-5/8 long (mag. pad)	2
7	STD-1339	PLUG, 1/16 NPT, Allen head	1
8	LW-10341	INSERT, 1.00-14 Heli-coil x 3/8 long	1
9	MS124703	INSERT, 3/4-16 Heli-coil x 1-1/8 long	1
10	LW-12589	INSERT, 5/8-18 Heli-coil x 3/8 long	1

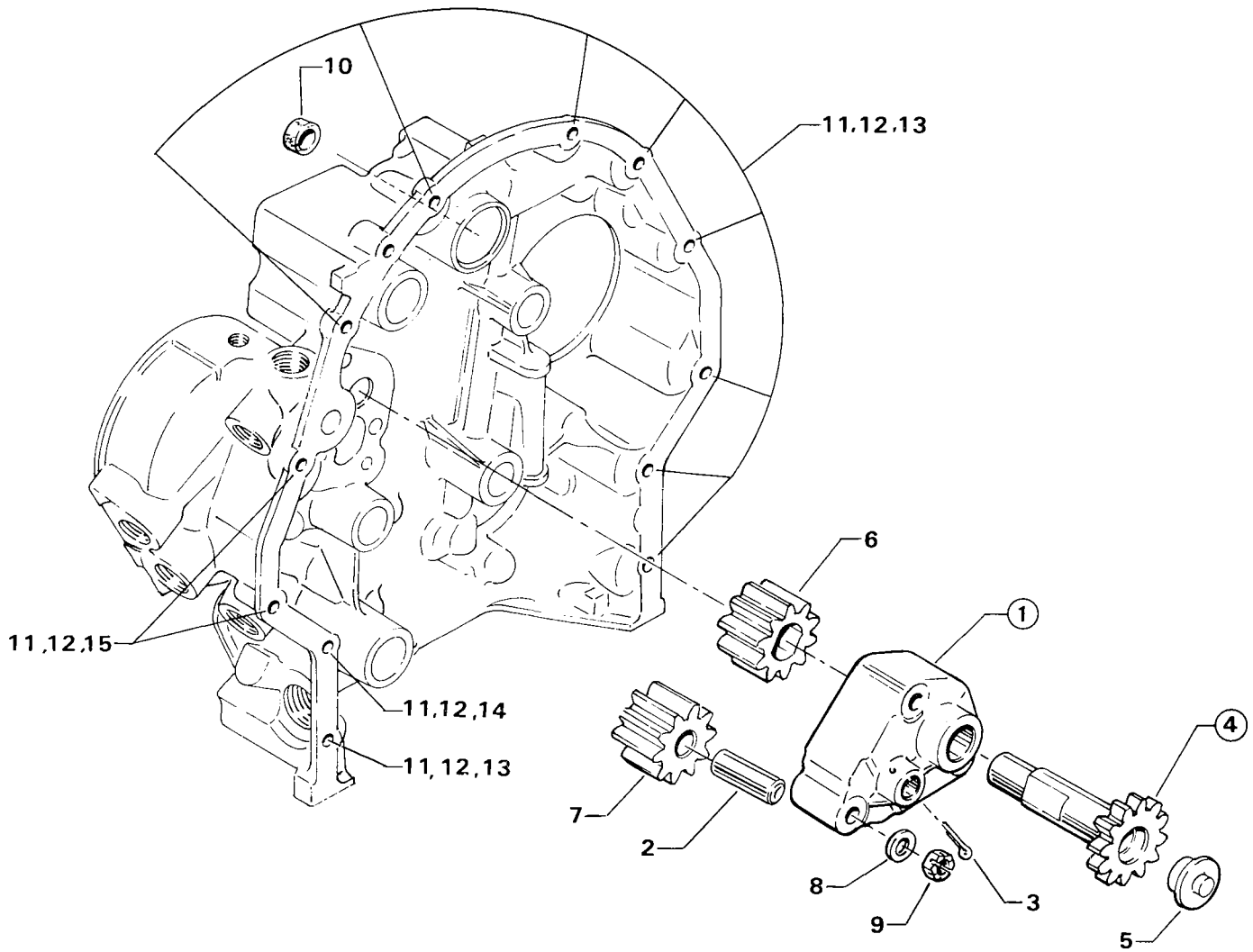


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Figure 9. ACCESSORY HOUSING ASSEMBLY

**ACCESSORY HOUSING AND RELATED PARTS**  
 OIL PUMP ASSEMBLY AND ACCESSORY HOUSING ATTACHING PARTS

<b>FIG. REF. 10</b>	<b>PART NUMBER</b>	<b>DESCRIPTION</b>	<b>QUANTITY PER ASSEMBLY</b>
1	LW-10344	BODY ASSY., Oil pump	1
2	60329	SHAFT, Oil pump idler	1
3	STD-714	PIN, 1/8 dia. x 1.00 long, cotter	1
4	LW-10318	GEAR ASSY., Oil pump drive	1
5	61166	THRUST BUTTON, Oil pump drive gear	1
6	61297	IMPELLER, Oil pump driving	1
7	61298	IMPELLER, Oil pump driven	1
8	STD-35	WASHER, 5/16 plain	3
9	STD-1420	NUT, 5/16-18 slotted	3
10	LW-14260	SEAL, Tachometer drive, oil	1
11	STD-8	WASHER, 1/4 plain	12
12	STD-160	WASHER, 1/4 lock, internal teeth	12
13	LW-25-0.94	BOLT, 1/4-20 x 15/16 long, hex. hd.	9
14	LW-25-1.25	BOLT, 1/4-20 x 1-1/4 long, hex. hd.	1
15	LW-25-0.81	BOLT, 1/4-20 x 13/16 long, hex. hd.	2

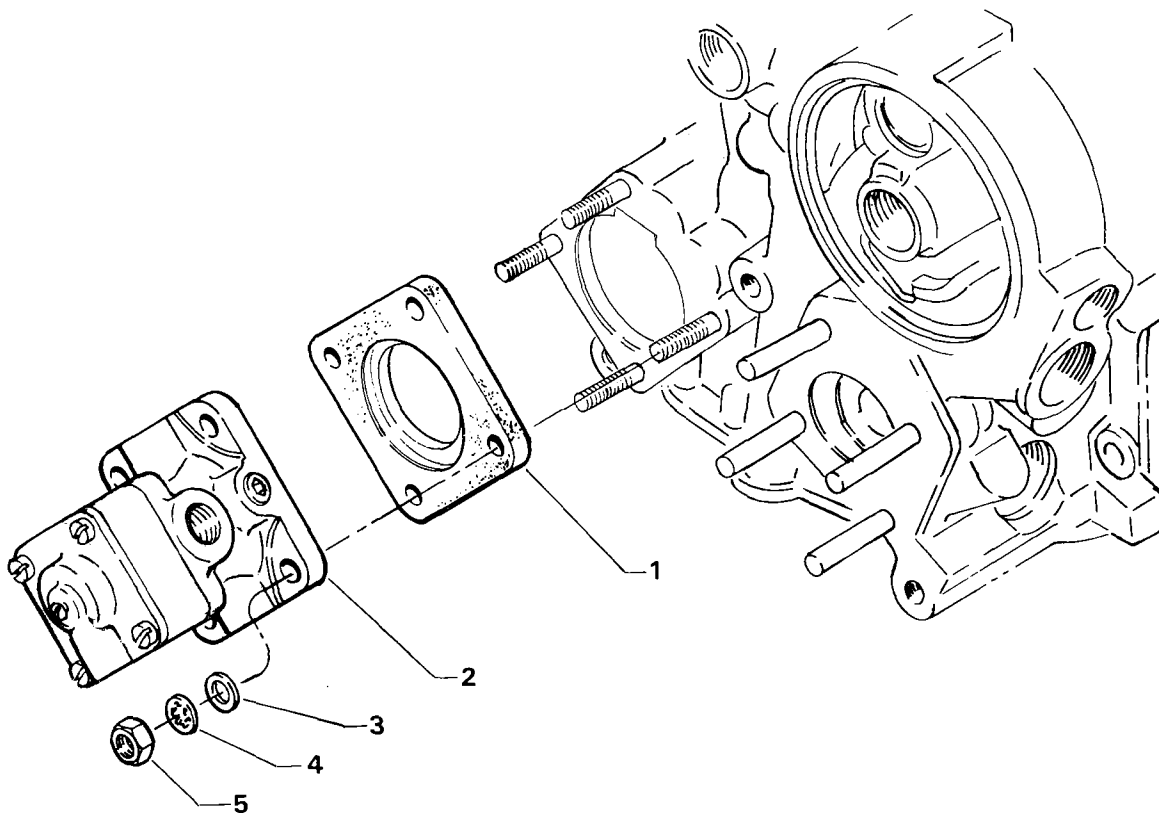


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**Figure 10. OIL PUMP ASSEMBLY AND ACCESSORY HOUSING ATTACHING PARTS**

**ACCESSORY HOUSING AND RELATED PARTS**  
 FUEL PUMP ASSEMBLY

FIG. REF. 11	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	LW-10799	SPACER, Fuel pump insulating	1
2	LW-12534	FUEL PUMP, Lear Siegler (RG17980P)	1
3	STD-35	WASHER, 5/16 plain	4
4	STD-475	WASHER, 5/16 lock, internal teeth	4
5	STD-1410	NUT, 5/16-18 plain	4



3005

Figure 11. FUEL PUMP ASSEMBLY



**ACCESSORY HOUSING AND RELATED PARTS**  
 OIL FILTER ASSEMBLY AND OIL COOLER BYPASS VALVE

FIG. REF. 12	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	LW-10321	SPRING, Oil filter bypass valve	1
2	76539	SEAT, Oil relief valve	1
3	LW-10320	SLEEVE, Oil filter bypass valve	1
4	MS16625-1100	RING, Internal retaining	1
5	54D19627*	OIL FILTER, (short, no stud)	1
6	LW-13904*	KIT, Converter plate, oil filter	1
7	53E19600	VALVE ASSY., Temp. control oil cooler bypass	1
8	76510	GASKET, Valve assembly	1

\* See latest edition of Lycoming SSP-885 for oil filter kits and replacement filters.

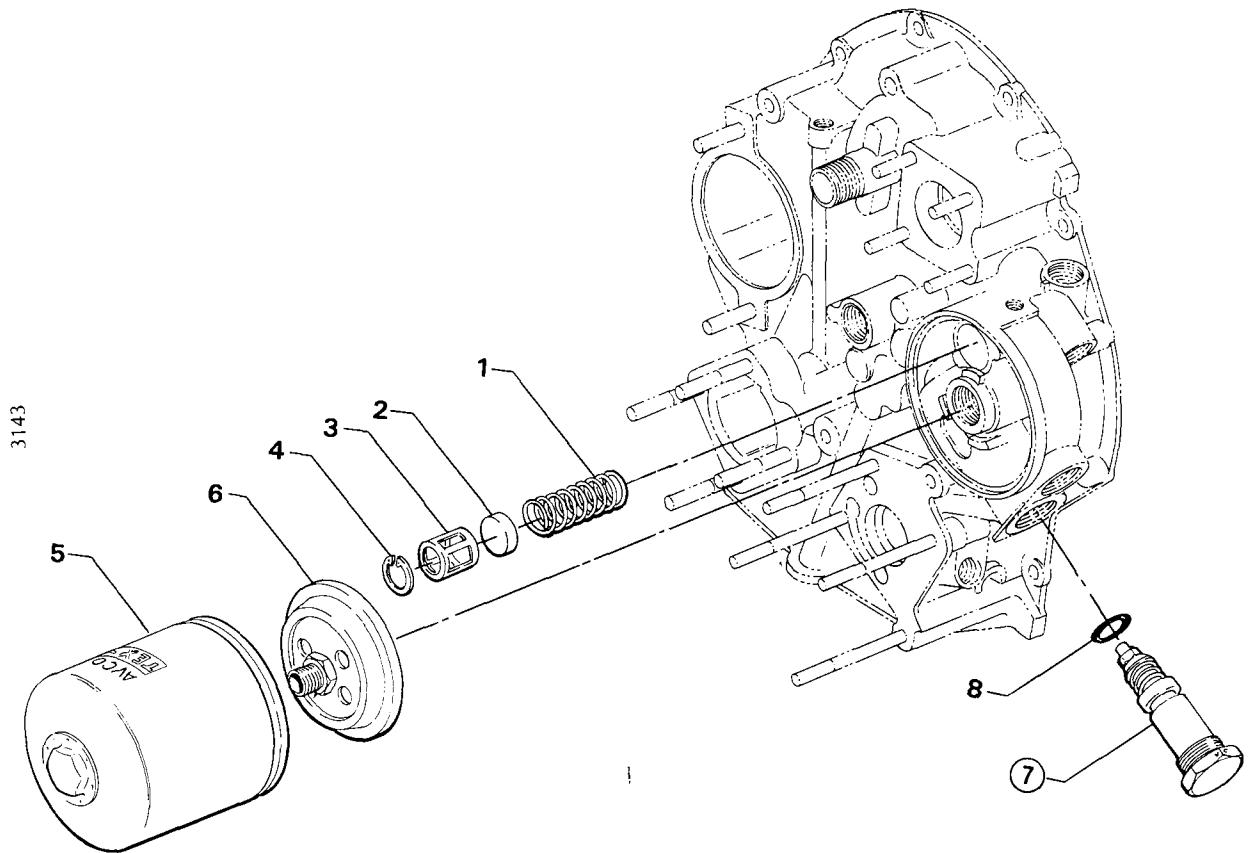
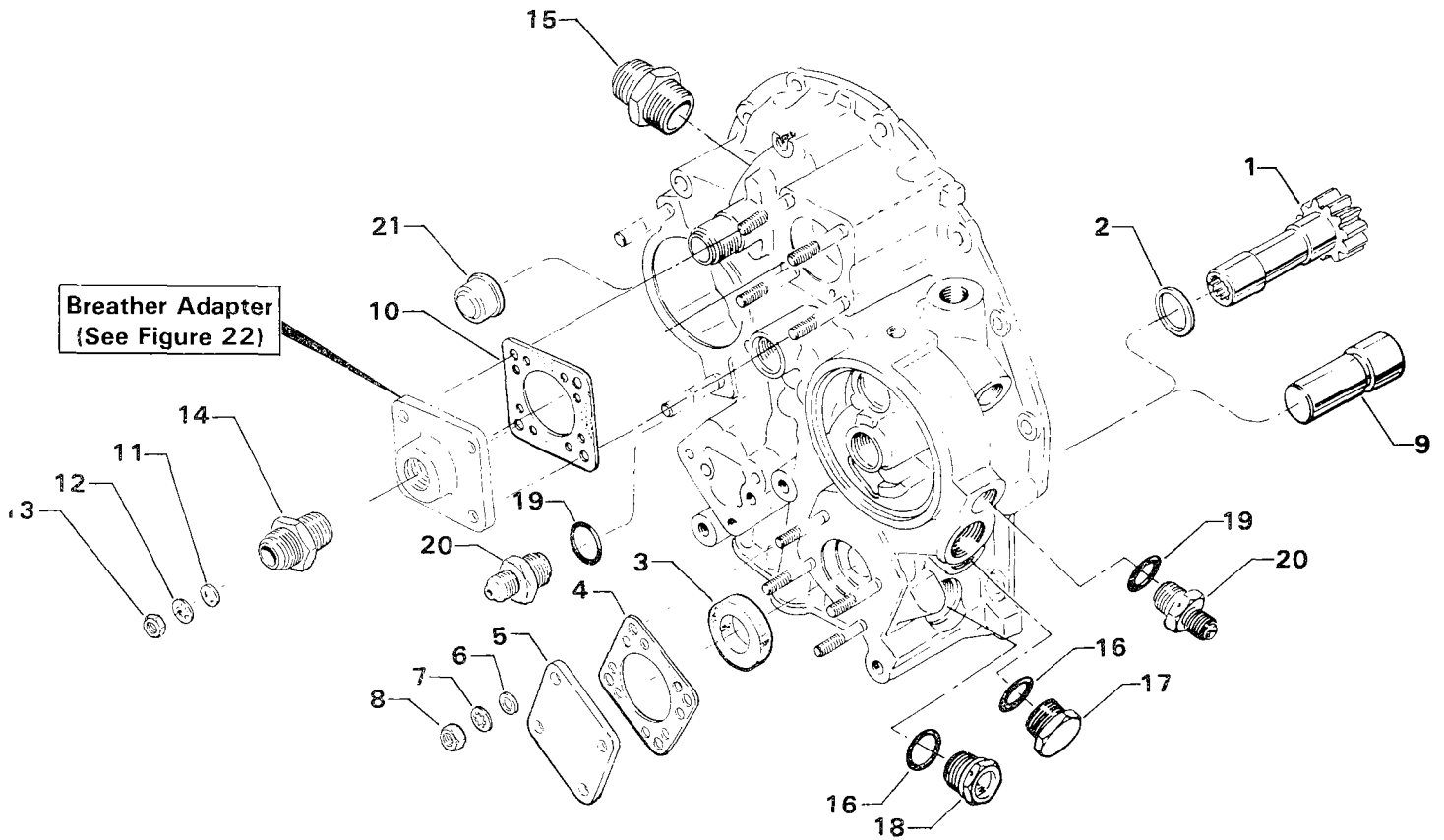


Figure 12. OIL FILTER ASSEMBLY AND OIL COOLER BYPASS VALVE

**ACCESSORY HOUSING AND RELATED PARTS**  
 VACUUM AND HYDRAULIC PUMP DRIVES, OIL COOLER AND BREATHER FITTINGS

<b>FIG. REF. 13</b>	<b>PART NUMBER</b>	<b>DESCRIPTION</b>	<b>QUANTITY PER ASSEMBLY</b>
1	LW-10313	GEAR ASSY., Accessory driven <sup>1</sup>	1
2	71596	WASHER, Accessory drive gear	1
3	STD-2217	OIL SEAL, 7/8 I.D. x 1-1/2 O.D. x 5/16 wide	1
4	8313	GASKET, Hydraulic pump	1
5	60430	COVER, Hydraulic pump	1
6	STD-8	WASHER, 1/4 plain	4
7	STD-160	WASHER, 1/4 internal lock	4
8	STD-1411	NUT, 1/4-20 plain	4
9	LW-10303**	PLUG, Hydraulic pump drive	1
10	8313	GASKET, Vacuum pump	1
11	STD-8	WASHER, 1/4 plain	4
12	STD-160	WASHER, 1/4 internal lock	4
13	STD-1411	NUT, 1/4-20 plain	4
14	AN816-10D*	NIPPLE, 5/8 flared tube & 1/2 NPT	1
15	AN816-10-12D	FITTING, Breather	1
16	MS29512-10	SEAL, Oil, 3/32 section x 45/64 I.D.	2
17	AN814-10L	PLUG, 7/8-14 thread (upper boss)	1
18	LW-14178	PLUG, 7/8-14 thread (lower boss)	1
19	MS29512-10	SEAL, Oil, 3/32 section x 45/64 I.D.	2
20	LW-14828	REDUCER, 1/2 tubing to 5/8 tubing	2
21	62732	CAP, Tachometer drive	1

\* Used with breather adapter with oil pick-up. See Figure 22 for list and illustration covering aerobic components.  
 \*\* Used on engines not employing rear propeller governor drive.



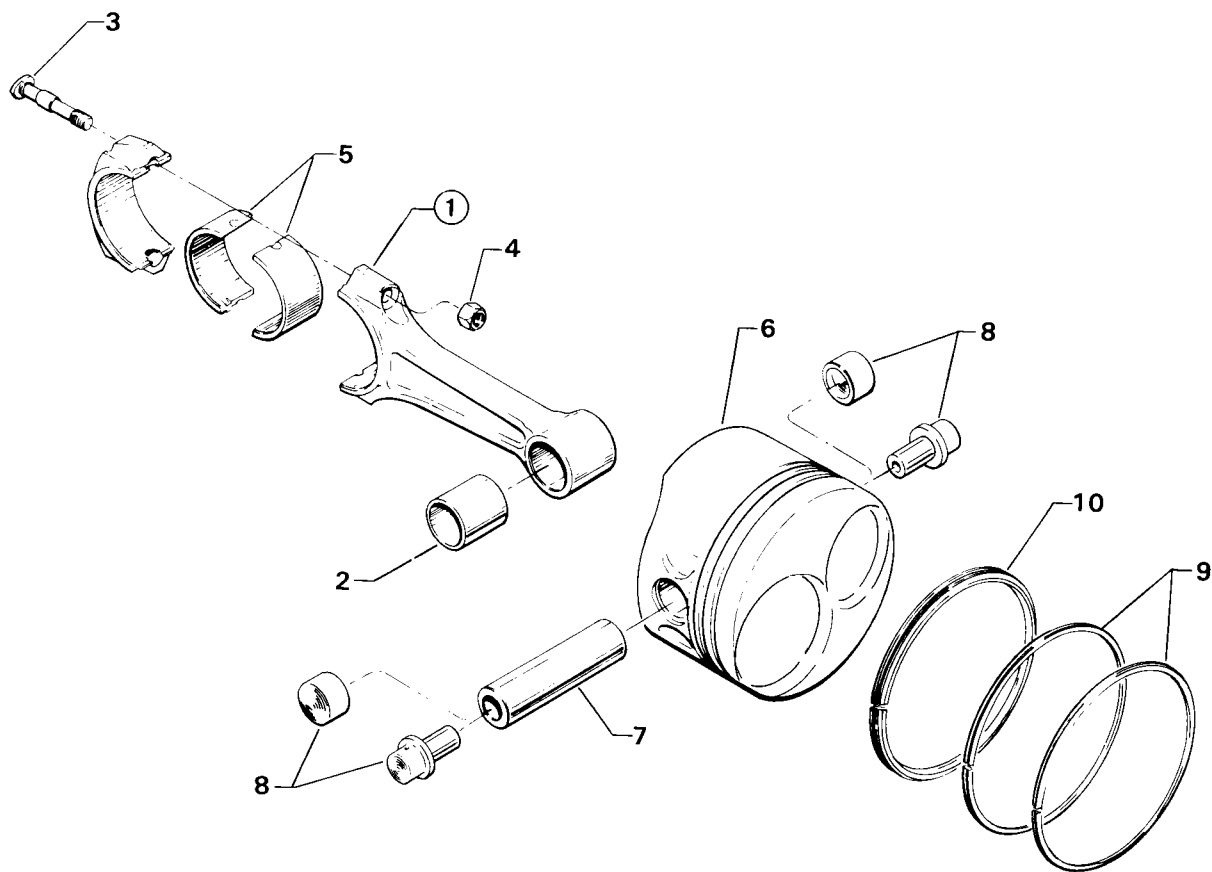
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Figure 13. VACUUM AND HYDRAULIC PUMP DRIVES, OIL COOLER AND BREATHER FITTINGS

**CYLINDER, PISTON AND VALVE TRAIN**  
 CONNECTING RODS, PISTON AND RING ASSEMBLIES

<b>FIG. REF. 14</b>	<b>PART NUMBER</b>	<b>DESCRIPTION</b>	<b>QUANTITY PER ASSEMBLY</b>
1	LW-19332	CONNECTING ROD ASSEMBLY	6
2	LW-13923	BUSHING, Connecting rod, upper	6
3	LW-12596	BOLT, Connecting rod	12
4	LW-12186	NUT, Connecting rod	12
5	74309	BEARING, Connecting rod	12
	LW-14954	BEARING, Connecting rod (alternate)	12
6	LW-10207-S	PISTON, Compression ratio 8.7:1	6
7	LW-14077*	PIN, Piston	6
	LW-14078	PIN, Piston	6
8	LW-11775*	PLUG, Piston pin	12
	60828	PLUG, Piston pin	12
9	74241	RING, Piston compression	12
10	73857	RING, Piston, oil regulating (expander type)	6

\* Piloted piston pin plug.



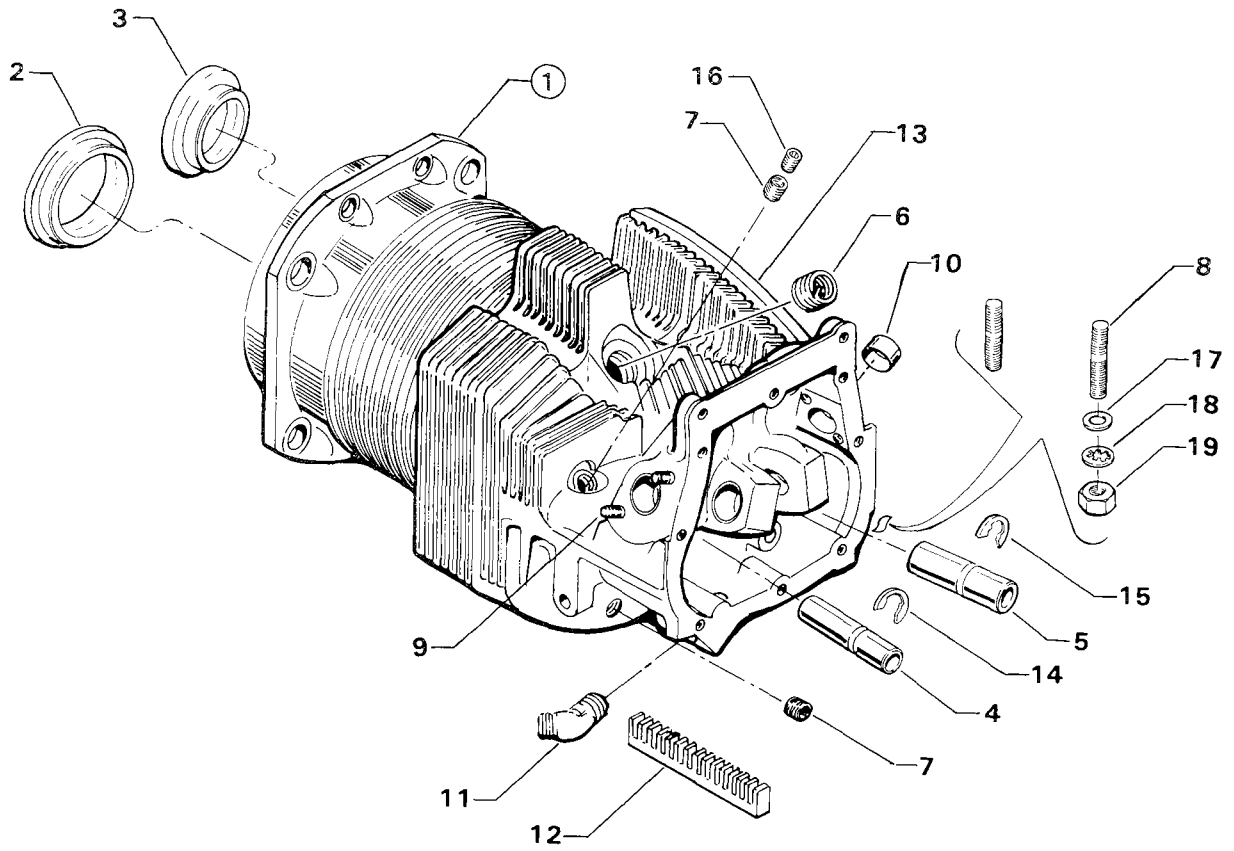
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Figure 14. CONNECTING RODS, PISTON AND RING ASSEMBLIES

**CYLINDER, PISTON AND VALVE TRAIN**  
 CYLINDER ASSEMBLY

<b>FIG. REF. 15</b>	<b>PART NUMBER</b>	<b>DESCRIPTION</b>	<b>QUANTITY PER ASSEMBLY</b>
1	LW-12993	CYLINDER AND HEAD ASSEMBLY	6
2	LW-12688	SEAT, Intake valve	6
3	16T19468	SEAT, Exhaust valve	6
4	LW-11956-S*	GUIDE, Valve intake, grooved (flangeless)	6
5	LW-11958-S**	GUIDE, Valve exhaust, grooved (flangeless)	6
6	66796	INSERT, Spark plug	12
7	STD-1872	INSERT, 1/8-27 Heli-coil, taper pipe thd.	12
8	31C-12	STUD, 5/16-18 x 1-1/2 long	12
9	25C-8	STUD, 1/4-20 x 1.00 long	24
10	66670	BUSHING, Rocker shaft	24
11	MS20823-6D	ELBOW, 3/8 flared tube & 1/4 pipe thd., 45°	6
12	72343	STABILIZER, Cylinder head fins, 15 teeth	6
13	72344	STABILIZER, Cylinder head fins, 26 teeth	6
14	LW-19298	RING, Guide retaining, intake	6
15	LW-19299	RING, Guide retaining, exhaust	6
16	1102★	PLUG, 1/8-27 NPT, Allen head	6
17	STD-35	WASHER, 5/16 plain, exhaust flange attaching	12
18	STD-475	WASHER, 5/16 lock, internal teeth, exhaust flange attaching	12
19	STD-1410	NUT, 5/16 plain, exhaust flange attaching	12

- \* Item No. 14 valve guide ring P/N LW-19298 must be ordered separately when ordering this part. Refer to latest edition of Service Instruction No. 1256.
- \*\* Item No. 15 valve guide ring P/N LW-19299 must be ordered separately when ordering this part. Refer to latest edition of Service Instruction No. 1256.
- ★ Assemble in cylinder head.



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Figure 15. CYLINDER ASSEMBLY

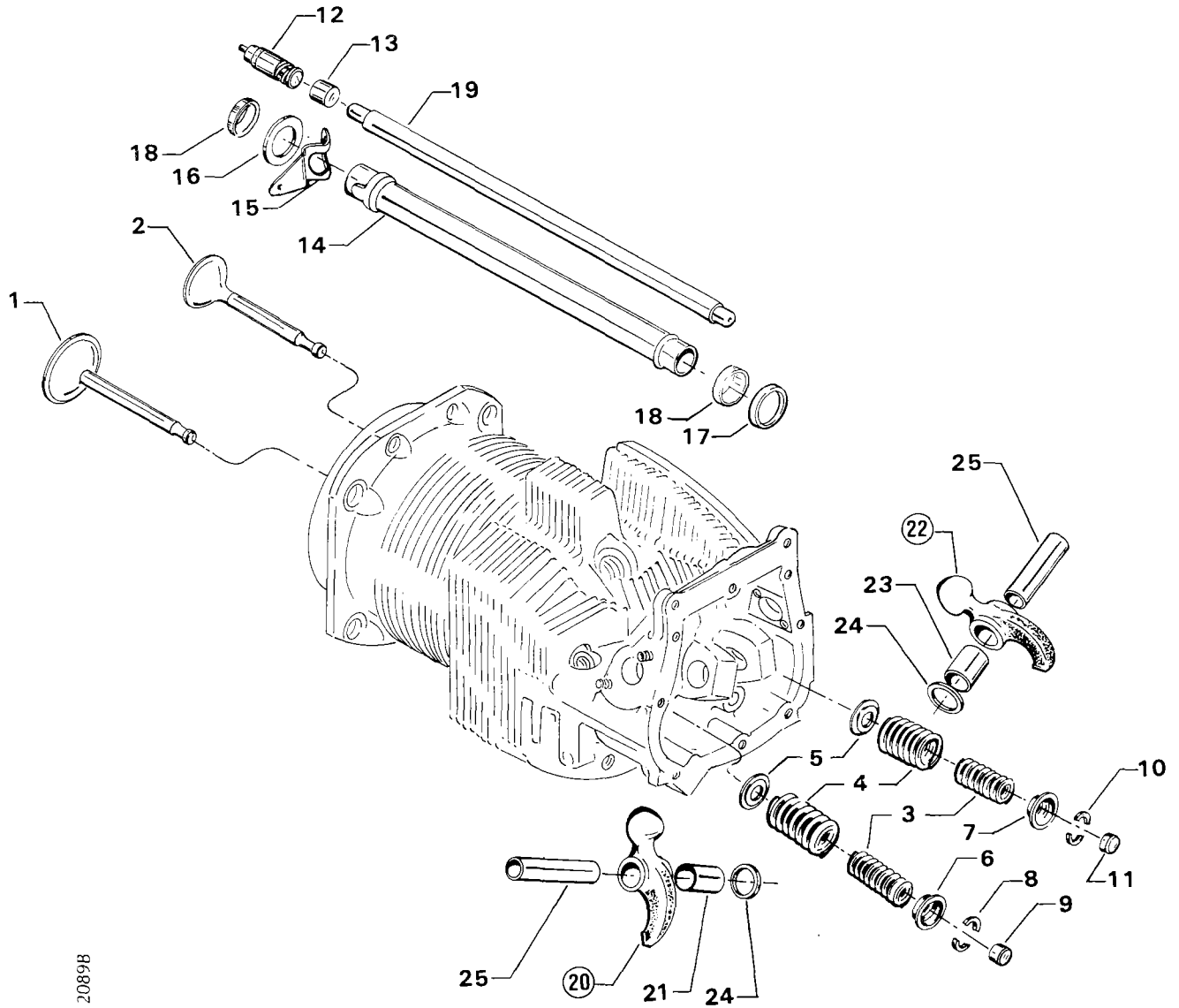
**CYLINDER, PISTON AND VALVE TRAIN**  
 VALVE ASSEMBLY

FIG. REF. 16	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	LW-13622	VALVE, Intake (small diameter intake rotator)	6
2	LW-16740	VALVE, Exhaust (nimonic)	6
3	LW-11797	SPRING, Valve, inner	12
4	LW-11796	SPRING, Valve, outer	12
5	LW-13322	SEAT, Valve spring, lower intake & exhaust	12
6	69532	SEAT, Valve spring, upper intake	6
7	LW-16475	SEAT, Valve spring, upper exhaust (rotator)	6
8	72050	KEY, Valve intake	12
9	62388	CAP, Valve stem	6
10	MS13997-3	KEY, Valve exhaust (rotator type)	12
11	MS13998-3	CAP, Valve stem, exhaust (rotator type)	6
12	78290	PLUNGER ASSY., Hydraulic tappet	12
13	78524	SOCKET, Push rod, hydraulic tappet	12
14	72255	SHROUD TUBE ASSY., Push rod	12
15	LW-13077	SPRING, Shroud tube	24
16	66728*	WASHER, 25/32 I.D. x 1-1/4 O.D. x 1/32 thick (max. 24)	AR
17	61503	SLEEVE, Shroud tube seal	12
18	LW-18661	SEAL, Shroud tube	24
19	73455**	ROD ASSY., Push (a total of 12 required)	AR
	73456**	ROD ASSY., Push (a total of 12 required)	AR
	73457**	ROD ASSY., Push (a total of 12 required)	AR
	73458**	ROD ASSY., Push (a total of 12 required)	AR
	73555**	ROD ASSY., Push (a total of 12 required)	AR
	73556**	ROD ASSY., Push (a total of 12 required)	AR
	73557**	ROD ASSY., Push (a total of 12 required)	AR
	73558**	ROD ASSY., Push (a total of 12 required)	AR
20	67113	ROCKER ASSY., Intake valve	6
21	67114	BUSHING, Valve rocker	6
22	67112	ROCKER ASSY., Exhaust valve	6
23	67114	BUSHING, Valve rocker	6
24	71549	WASHER, Valve rocker	12
25	72626	SHAFT, Valve rocker	12

\* See latest edition of  
 \*\* See latest edition of

Lycoming Service Instruction No. 1284 for application of P/N 66728 washer.  
 Lycoming Service Instruction No. 1060 for complete push rod application.





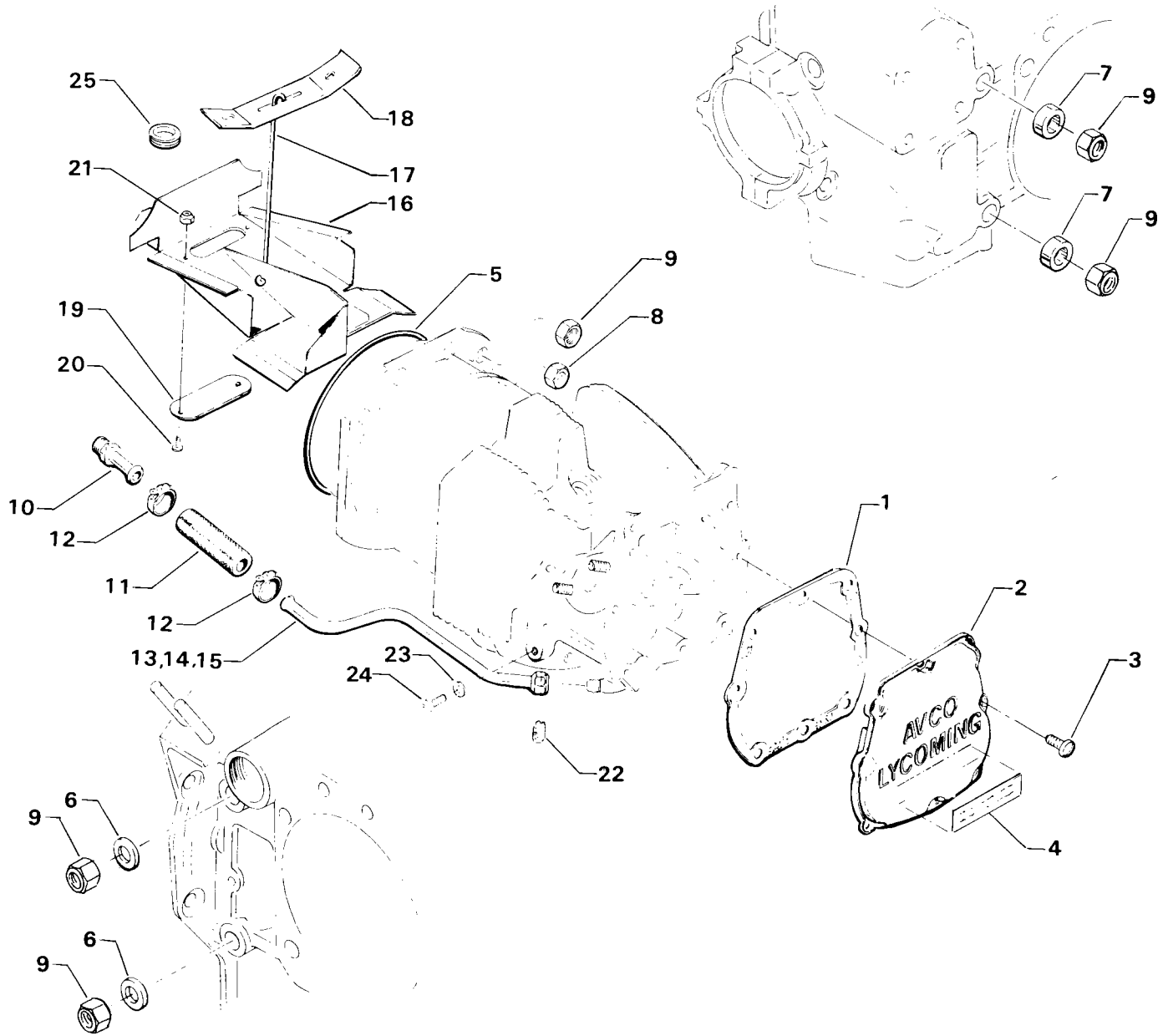
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Figure 16. VALVE ASSEMBLY

**CYLINDER, PISTON AND VALVE TRAIN**  
 CYLINDER RELATED PARTS

FIG. REF. 17	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	67193	GASKET, Rocker box cover	6
2	68795	COVER ASSY., Rocker box	6
3	STD-1925	SCREW, 1/4-20 x 5/8 long, pan. hd., self-locking	48
4	74494	PLATE, Spark plug reach caution	6
5	71481	RING, Oil seal, 3/32 dia. section x 4-27/32 I.D.	6
6	77906	SPACER, 33/64 I.D. x 7/8 O.D. x 1/8 thick (rear of crankcase)	2
7	74887	SPACER, 33/64 I.D. x 7/8 O.D. x 3/8 thick (front of crankcase)	2
8	383-B	NUT, 3/8-24 plain	24
9	STD-2090	NUT, 1/2-20 plain	28
10	STD-684	NIPPLE, Straight, 3/8 I.D. hose	6
11	STD-2180	HOSE, 3/8 I.D. x 1-13/16 long	6
12	LW-15592-5-05	CLAMP, Hose	12
13	72702	TUBE ASSY., Cyl. head oil drain, cyl. no. 1	1
14	72703	TUBE ASSY., Cyl. head oil drain, cyl. no. 2	1
15	73027	TUBE ASSY., Cyl. head oil drain, cyls. no. 3, 4, 5, 6	4
16	75338	BAFFLE ASSY., Intercylinder	3
	LW-13430*	BAFFLE ASSY., Intercylinder	1
17	71610	HOOK, Intercylinder baffle retainer	4
18	71611	RETAINER, Intercylinder baffle	4
19	72834	COVER, Baffle ignition cable hole	4
20	STD-692	SCREW, No. 10-32 x 1/2 long, rd. hd.	8
21	STD-670	NUT, No. 10-32 self-locking	8
22	65614	PLUG, Baffle attaching	4
23	STD-251	WASHER, No. 10 lock, internal teeth	4
24	STD-1686	SCREW, No. 10-32 x 7/16 long, fill. hd.	4
25	AN931-14-20	GROMMET, 7/8 I.D. x 1-5/8 O.D. x 7/16 thick	1

\* Assemble between No. 2 and No. 4 cylinders.



2891, 2739

Figure 17. CYLINDER RELATED PARTS

**IGNITION SYSTEM**  
 MAGNETOS, DRIVES, HARNESSES AND SPARK PLUGS

FIG. REF. 18	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	LW-13899	GEAR, Retainer, magneto drive i	1
2	LW-13641	CUSHION, Magneto drive	2
3	LW-12681	GASKET, Magneto	1
4	LW-685126-107	MAGNETO IGNITION SYSTEM (D6LN-3000)	1
5	LW-682560-13	MAGNETO, Ignition	1
6	LW-684602-303	HARNESS, Ignition	1
7	66M19385	CLAMP, Magneto	2
8	STD-475	WASHER, 5/16 lock, internal teeth	2
9	STD-1410	NUT, 5/16-18 plain	2
10	LW-620026-2	CLIP, One wire for 1/4 screw (bottom leads)	4
11	LW-14057	CLIP, One wire for 1/4 screw (top leads)	2
12	STD-8	WASHER, 1/4 plain	14
13	LW-620028-2	CLIP, Two wire for 1/4 screw (bottom leads)	1
14	LW-620028-3	CLIP, Two wire for 1/4 screw (top leads)	2
15	LW-620029-6	CLIP, Three wire for No. 10-32 screw (bottom leads)	1
16	LW-620029-6	CLAMP, Three wire (bottom leads)	2
17	LW-620037-4	CLIP, Six wire for No. 10-32 screw	1
18	LW-620036-4	CLIP, Six wire for No. 10-32 screw	1
19	LW-620032-7	CLAMP, Ignition harness	1
20	LW-14875	BRACKET, Extension	1
21	STD-692	SCREW, No. 10-32	2
22	STD-670	NUT, Self-locking	2
23	LW-16266-10-75	CLAMP	1
24	76734	ZIP STRAP	26
25	STD-696	WASHER, 1/4 plain (thin)	AR
26	STD-1874	SCREW, 1/4-20 x 13/16 long	7
27	STD-1925	SCREW, 1/4-20 self-locking	2
28	STD-2029	BOLT, 1/4-20 x 1-1/8 long	2
29	1182-D4*	SPARK PLUG, Champion (RHM38E)	12
30	LW-382698	KIT, Magneto ground terminal	2

\* Item No. 29 spark plug is used in current production only. Additional spark plugs are available for this engine. See latest edition of Lycoming Service Instruction No. 1042 for complete listing of all approved spark plugs.

NOTE

Individual spark plug leads may be replaced by ordering either 10-720633-48 (4B, 6B, 4T, 6T) or 10-720633-78 (1B, 2B, 3B, 5B, 1T, 2T, 3T, 5T).

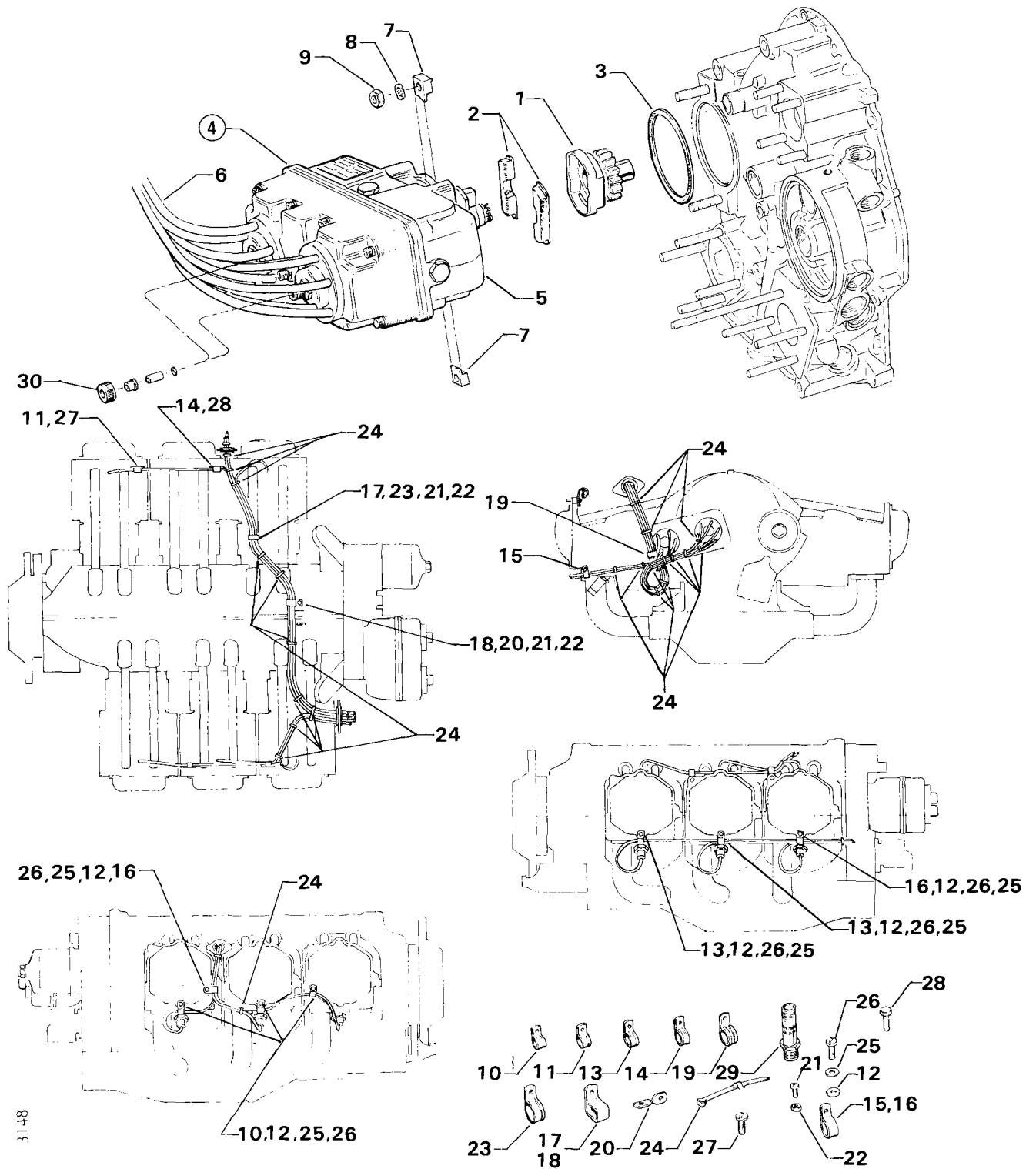


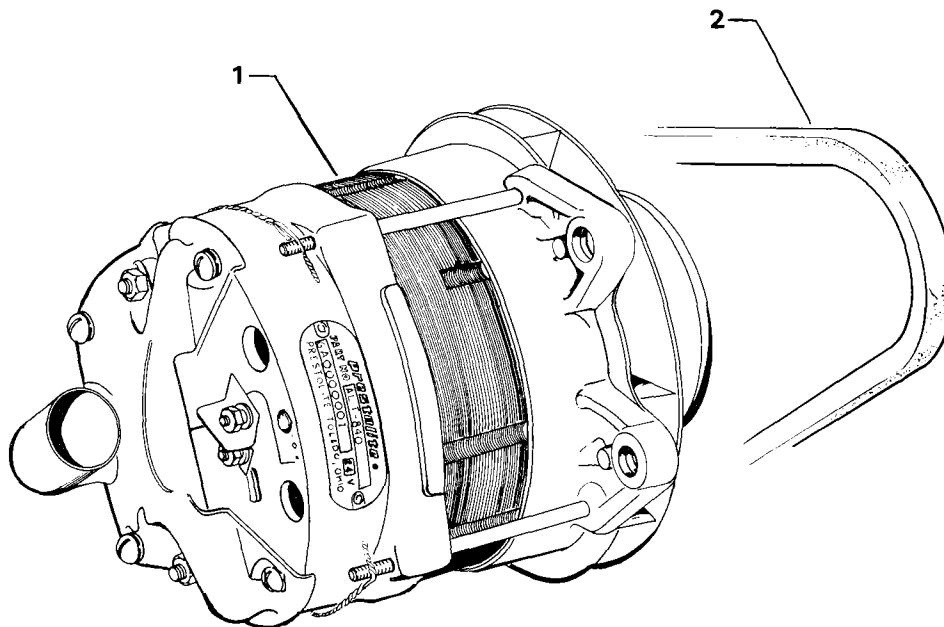
Figure 18. MAGNETOS, DRIVES, HARNESSES AND SPARK PLUGS

**ELECTRICAL COMPONENTS**  
 ALTERNATOR AND BELT

FIG. REF. 19	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	LW-14324	ALTERNATOR, 24 volt, 70 amp, externally grounded, (ALU-8421)	1
2	76026	BELT, Alternator drive, 3/8 wide	1

NOTE

See latest edition of Lycoming Service Instruction No. 1154 for complete listing of FAA approved starters, generators, alternators, regulators and relays.



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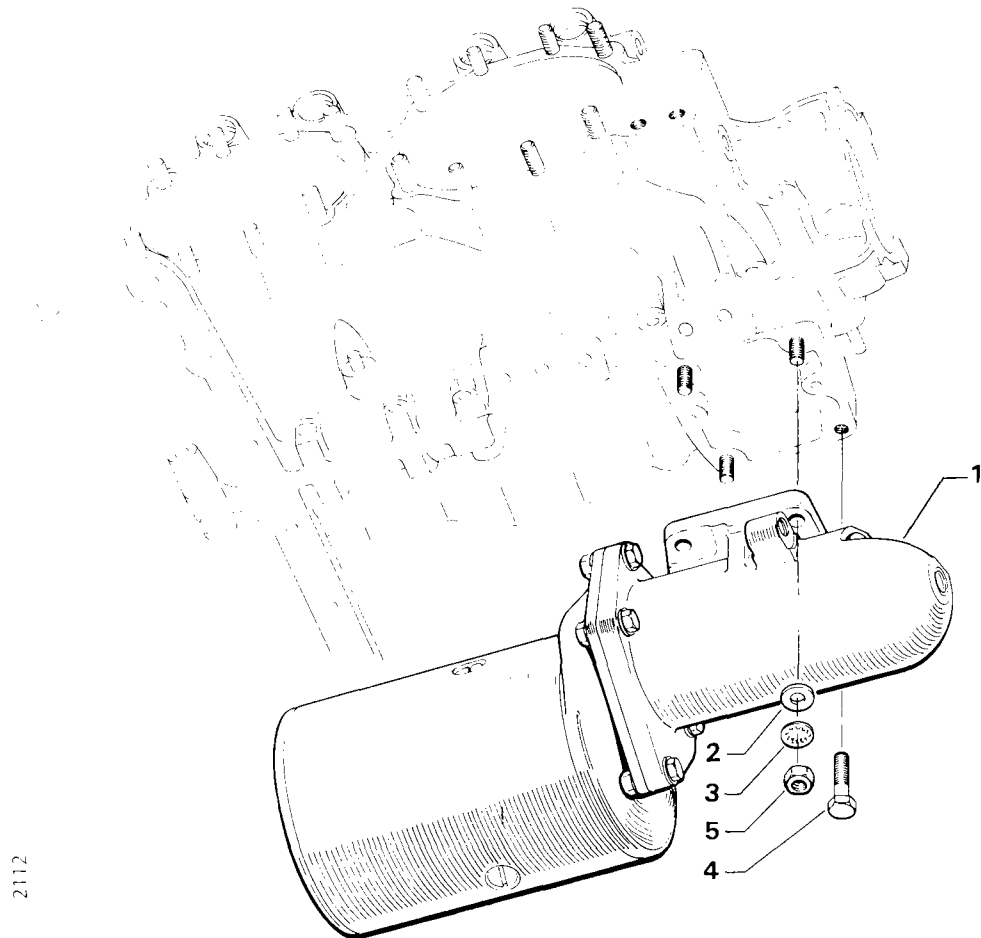
Figure 19. ALTERNATOR AND BELT

**ELECTRICAL COMPONENTS**  
 STARTER MOTOR AND ATTACHING PARTS

FIG. REF. 20	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	LW-15571	STARTER, 12 volt (3.38:1 internal reduction, 12/14 pinion) (MZ-4222)	1
	LW-15572	STARTER, 24 volt (3.38:1 internal reduction, 12/14 pinion) (MHB-4016)	1
2	STD-35	WASHER, 5/16 plain	4
3	STD-475	WASHER, 5/16 lock, internal teeth	4
4	LW-31-1.16	BOLT, 5/16-18 x 1-5/32 long, hex. hd.	1
5	STD-1410	NUT, 5/16-18 plain	3

NOTE

See latest edition of Lycoming Service Instruction No. 1154 for complete listing of FAA approved starters, generators, alternators, regulators and relays.



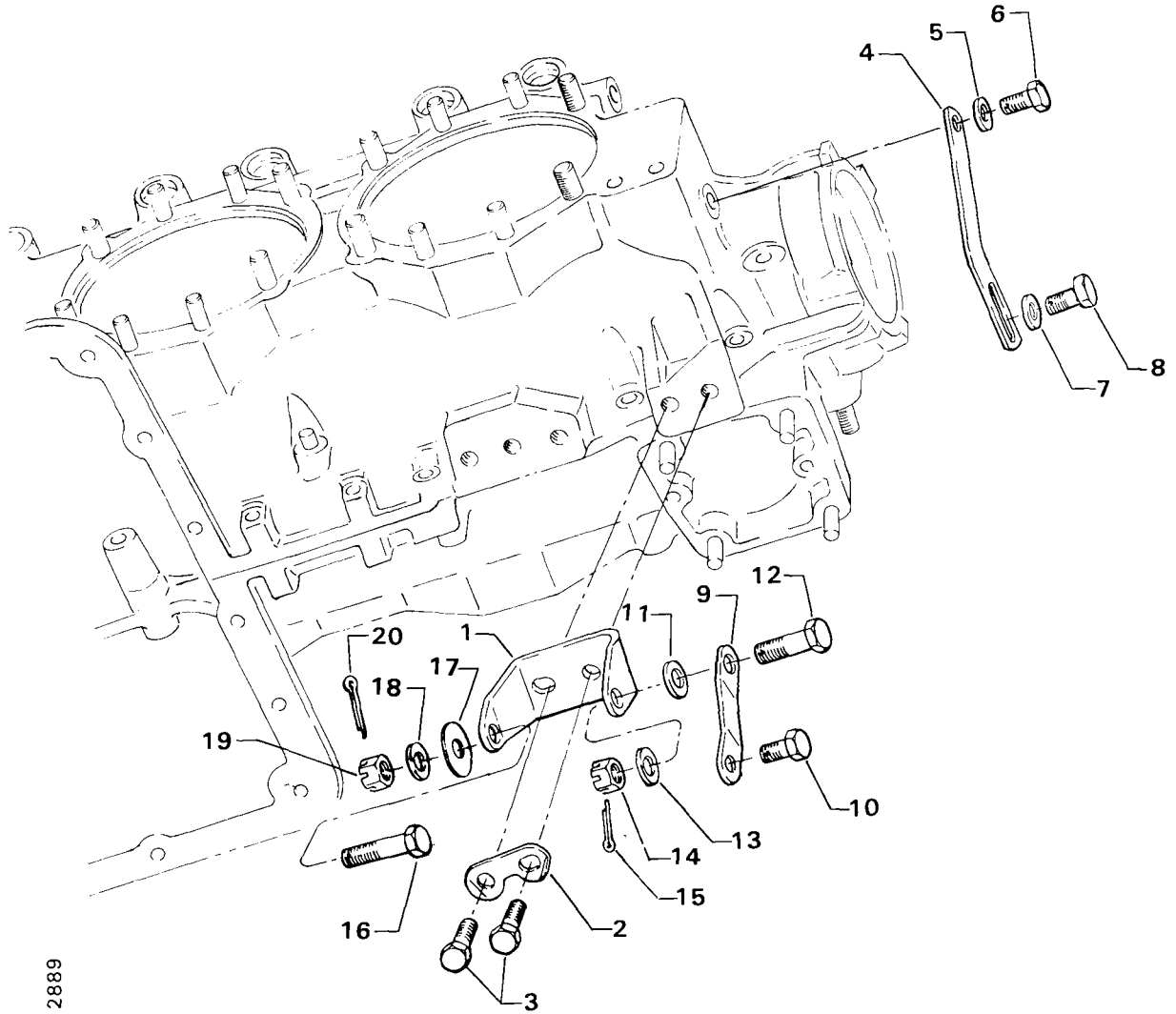
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Figure 20. STARTER MOTOR AND ATTACHING PARTS

**ELECTRICAL COMPONENTS**  
ALTERNATOR MOUNTING AND ATTACHING PARTS

FIG. REF. 21	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	07A19474	BRACKET, Alternator	1
2	73383	LOCKPLATE, 5/16 bolt x 1.00 spacing	1
3	LW-31-0.94	BOLT, 5/16-18 x 15/16 long, hex. hd.	2
4	75380	LINK, Alternator adjusting	1
5	STD-35	WASHER, 5/16 plain	1
6	LW-31H.75	BOLT, 5/16-18 x 3/4 long, hex. hd., drilled	1
7	STD-1727	WASHER, Plain, 3/4 O.D. x 11/32 I.D. x 1/8 thick	1
8	LW-31H.75	BOLT, 5/16-18 x 3/4 long, hex. hd., drilled	1
9	74323	STRUT, Alternator support	1
10	LW-31H.75	BOLT, 5/16-18 x 3/4 long, hex. hd., drilled	1
11	STD-690	WASHER, 13/16 O.D. x 25/64 I.D. x 1/16 thick	AR
12	AN6-14	BOLT, 3/8-24 x 1-37/64 long, hex. hd., drilled end	1
13	STD-690	WASHER, 13/16 O.D. x 25/64 I.D. x 1/16 thick	AR
14	STD-872	NUT, 3/8-24 slotted	1
15	STD-713	PIN, Cotter, 3/32 dia. x 3/4 long	1
16	AN6-16	BOLT, 3/8-24 x 1-53/64 long, hex. hd., drilled end	1
17	76534	SHIM, 1-1/8 O.D. x 13/32 I.D. x .005 thick	AR
18	STD-690	WASHER, 13/16 O.D. x 25/64 I.D. x 1/16 thick	AR
19	STD-872	NUT, 3/8-24 slotted	1
20	STD-713	PIN, Cotter, 3/32 dia. x 3/4 long	1





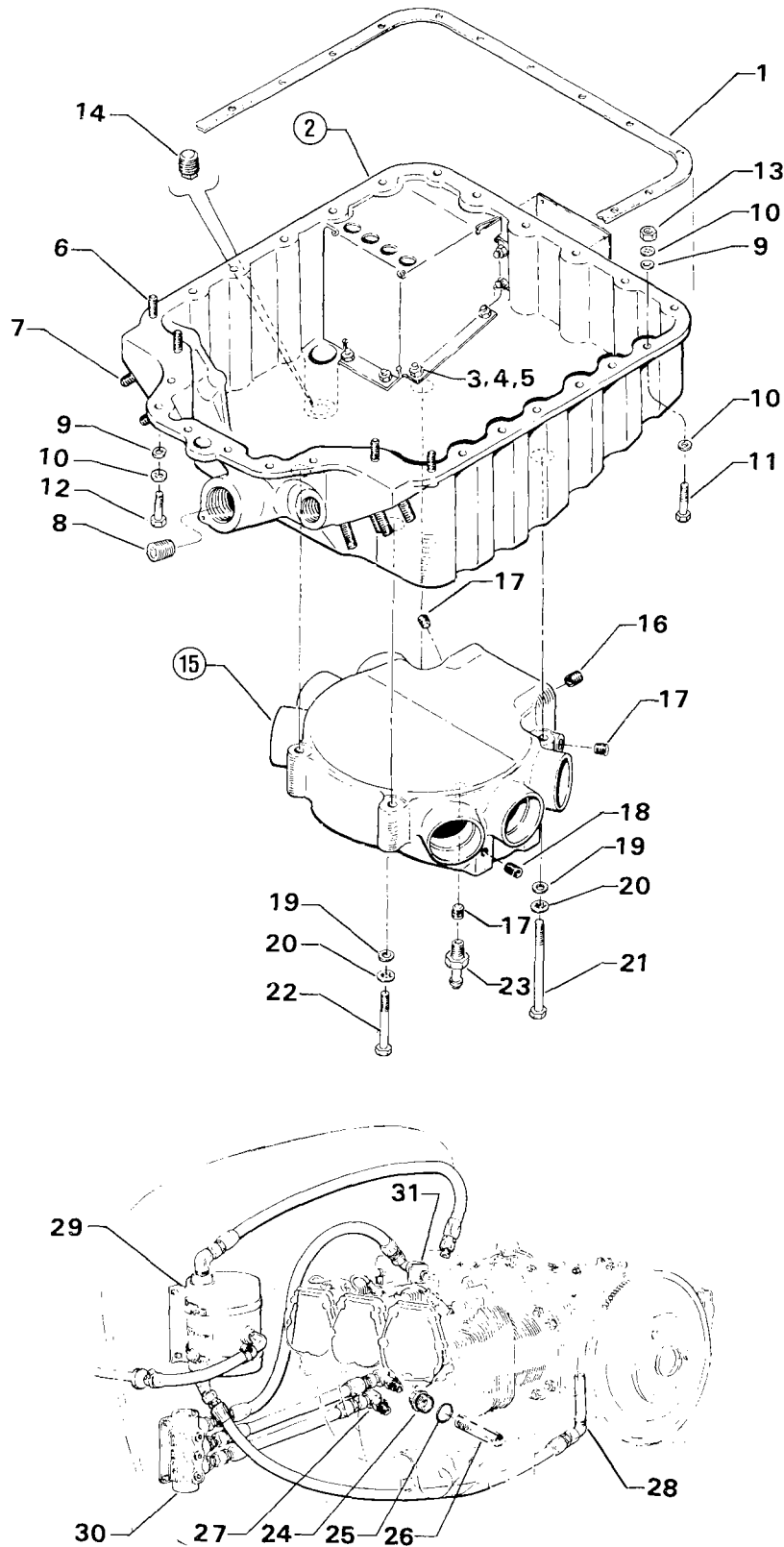
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Figure 21. ALTERNATOR MOUNTING AND ATTACHING PARTS

**OIL SUMP AND INDUCTION SYSTEM**  
 OIL SUMP AND INDUCTION HOUSING ASSEMBLY

<b>FIG. REF. 22</b>	<b>PART NUMBER</b>	<b>DESCRIPTION</b>	<b>QUANTITY PER ASSEMBLY</b>
1	LW-13306	GASKET, Oil sump	1
2	LW-16975	SUMP AND BAFFLE ASSY., Oil	1
3	LW-18061	BOLT, No. 10-32 self-sealing	6
4	STD-425	WASHER, No. 10 plain	6
5	STD-670	LOCKNUT, No. 10-32	6
6	25C-11	STUD, 1/4 x 1-3/8 long	4
7	38-15	STUD, 3/8-16 x 1-7/8 long	8
8	STD-784	PLUG, 3/8-18 NPT, Allen head	1
9	STD-8	WASHER, 1/4 plain	44
10	STD-160	WASHER, 1/4 lock, internal teeth	27
11	LW-25-1.13	BOLT, 1/4-20 x 1-1/8 long, hex. hd.	17
12	LW-25-1.00	BOLT, 1/4-20 x 1.00 long, hex. hd.	6
13	STD-1411	NUT, 1/4-20 plain	21
14	STD-551	PLUG, 1/2-14 NPT, sq. hd., drilled	1
15	LW-16899	HOUSING ASSY., Induction	1
16	STD-1164	INSERT, 5/16-18 x 5/8 long, Heli-coil	4
17	1102	PLUG, 1/8-27 NPT, Allen head	4
18	STD-1173	INSERT, 1/4-20 x 1/2 long, Heli-coil	4
19	STD-8	WASHER, 1/4 plain	4
20	STD-160	WASHER, 1/4 lock, internal teeth	4
21	STD-2026	BOLT, 1/4-20 NC-3 x 3-7/8 long, hex. hd.	2
22	STD-2025	BOLT, 1/4-20 NC-3 x 2-7/16 long, hex. hd.	2
23	75444	ADAPTER ASSY., Fuel drain valve	2
24	LW-16339	ADAPTER, Oil screen, 1.50-18 to 7/8-14 thd.	1
25	STD-1272	GASKET, 1-1/2 I.D. x 1-3/4 O.D. x 3/32 thick	1
26	77644	SCREEN, Oil suction	1
27	77155*	ELBOW, 5/8 flared tube & 13/16 NPT, 90°	2
28	LW-16918**	FITTING, Sump, oil return, 90°	1
29	LW-13749	OIL SEPARATOR	1
30	LW-13750	OIL VALVE	1
31	LW-16878	ADAPTER, Breather	1

- \* Assemble one elbow in oil return boss located at center rear of sump and to the left parallel with sump flange. Assemble one elbow in oil suction boss located at right rear of sump with fitting end down and 40° to the left of vertical.
- \*\* Assemble fitting with fitting end to left of engine and 45° towards rear.



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Figure 22. OIL SUMP AND INDUCTION HOUSING ASSEMBLY

**OIL SUMP AND INDUCTION SYSTEM**  
 INTAKE PIPE ASSEMBLY

<b>FIG. REF. 23</b>	<b>PART NUMBER</b>	<b>DESCRIPTION</b>	<b>QUANTITY PER ASSEMBLY</b>
1	72711	RING, Seal, intake pipes	6
2	LW-16341	PIPE, Intake, cylinder No. 1	1
	LW-18641 *	PIPE, Intake, cylinder No. 1	1
3	LW-16342	PIPE, Intake, cylinder No. 2	1
4	LW-16343	PIPE, Intake, cylinder No. 3	1
5	LW-16344	PIPE, Intake, cylinder No. 4	1
6	LW-16345	PIPE, Intake, cylinder No. 5	1
7	LW-16768	PIPE, Intake, cylinder No. 6	1
8	71973	GASKET, 2 bolt flange, 1-7/8 I.D.	6
9	74360	FLANGE, Intake pipe, upper	6
10	STD-8	WASHER, 1/4 plain	12
11	STD-160	WASHER, 1/4 lock, internal teeth	12
12	LW-25-1.25	BOLT, 1/4-20 x 1-1/4 long, hex. hd.	12

\* Customer request, change in No. 1 cylinder intake pipe.

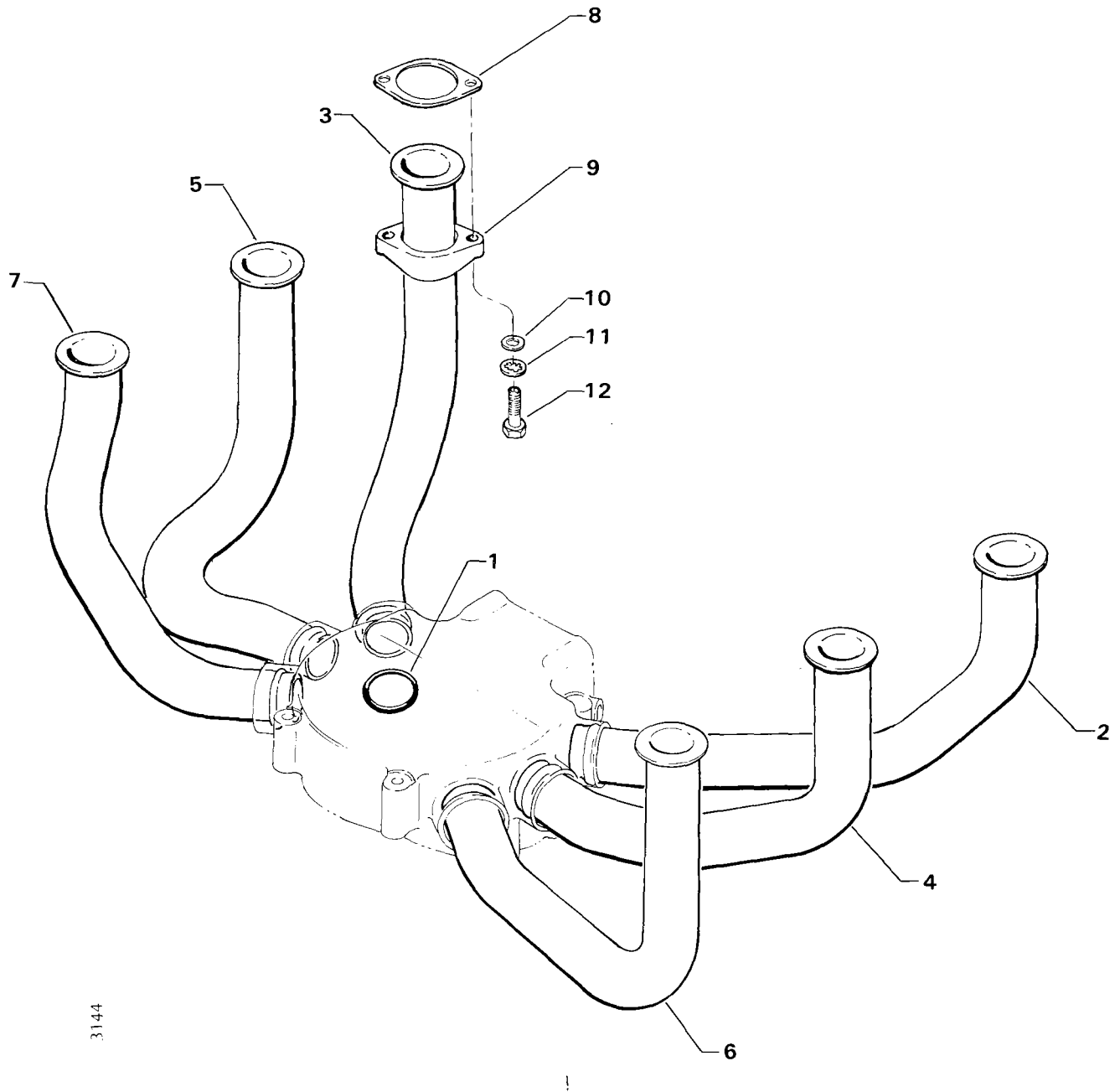


Figure 23. INTAKE PIPE ASSEMBLY

**OIL SUMP AND INDUCTION SYSTEM**  
 FUEL INJECTOR, FUEL MANIFOLD AND INJECTION NOZZLES

FIG. REF. 24	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	73032	GASKET, Inlet housing	1
2	77442	FUEL INJECTOR, RSA10-AD1 (2524318-10)	1
	LW-18066*	FUEL INJECTOR, RSA10-DB1 (2524855-4)	1
3	MS29512-6**	SEAL, 5/64 dia. section x 15/32 I.D.	1
4	AN919-6**	REDUCER, Flared tube (1/4 tubing)	1
5	76304★	ELBOW, Adjustable, 45°	1
6	STD-35	WASHER, 5/16 plain	4
7	STD-475	WASHER, 5/16 internal lock	4
8	LW-31-1.31	BOLT, 5/16-18 x 1-5/16 long, hex. hd.	4
9	LW-18265	NOZZLE, Injector	6
10	77418	MANIFOLD ASSY., Fuel	1
11	MS20822-4	ELBOW, 1/4 tube & 1/8 NPT, 90°	1
12	STD-148	NIPPLE, Union, 1/8 NPT	6
13	LW-12604	NIPPLE, 1/8 tube to 1/8 NPT (restricted)	1
14	73966	SPACER, Fuel manifold bracket	2
15	73965	BRACKET, Fuel manifold	2
16	STD-251	WASHER, No. 10 lock, internal	4
17	STD-82	SCREW, No. 10-24 x 1/2 long, rd. hd.	4
18	LW-12098-0-200	TUBE ASSY., Fuel manifold to nozzle, cyls. 1-2-5-6	4
19	LW-12098-0-170	TUBE ASSY., Fuel manifold to nozzle, cyls. 3 & 4	2
20	LW-16266-10-75	CLAMP	12
21	LW-16266-10-13	CLAMP	12
22	STD-860●	SCREW, 10-32 x 5/8 long, fill. hd.	14
23	STD-425	WASHER, No. 10 plain	2
24	STD-670	NUT, No. 10-32 self-locking	14
25	73136	BRACKET, 90°	2
26	LW-12798-4S242	HOSE ASSY., Fuel injector to fuel manifold	1
27	74278	BRACKET ASSY., Fuel line support	1
28	STD-1891	CLINCH NUT, No. 10-32 self-locking	2
29	LW-16266-25-63	CLAMP	1
30	STD-860	SCREW, No. 10-32 x 5/8 long, fill. hd.	1
31	STD-692	SCREW, No. 10-32 x 1/2 long, rd. hd.	2
32	STD-425	WASHER, No. 10 plain	3
33	STD-670	NUT, No. 10-32 self-locking	1
34	LW-16266-25-88	CLIP, 7/8 I.D. for 1/4 dia. screw (cushion type)	2
35	LW-13193-6S322	HOSE, Fuel pump to injector	1
	LW-12799-6S322*	HOSE, Fuel pump to injector	1
36	MS20822-6	ELBOW, 3/8 flared tube & 1/4 NPT, 90° (fuel pump outlet)	1

- \* Fuel injector with AMC unit.
- \*\* Assemble in fuel injector outlet.
- ★ Install elbow in fuel injector outlet port with fitting end up and 45° towards the front of the engine.
- Install screws with head towards the front of the engine.



**SERVICE KIT SECTION**
**SEAL AND GASKET SET**

Part No.	Part Name	Qty.
LW-13367	SEAL AND GASKET SET	1
MS29512-10	SEAL, Oil	2
MS16625-1081	RING, Internal retaining	1
STD-111*	GASKET, Oil suction screen	1
STD-2217	SEAL, Oil	1
STD-1045	GASKET, Oil pressure relief valve	1
1691-C*	GASKET, Fuel pump	1
8313	GASKET, Vacuum & hydraulic pump	2
LW-14260	SEAL, Tachometer drive	1
LW-18661	SEAL, Shroud tube	24
66732*	GASKET, Valve rocker shaft cover	12
67193	GASKET, Rocker box cover	6
69164	GASKET, Fuel pump adapter	1
70455	GASKET, Prop. drive gear plug	1
70457	GASKET, Oil filter extension	1
71450*	GASKET, Rocker box cover	6
71481	RING, Cyl. base seal	6
LW-14820	RING, Internal retaining	8
71973	GASKET, Intake pipe flange	6
72053	GASKET, Governor	1
72091	RING, Oil seal	2
72210*	GASKET, Air throttle housing	1
74065	"O" RING, Oil level gage	1
72312*	RING, Oil seal, oil level gage	1
72711	RING, Seal intake pipe	6
73032	GASKET, Inlet housing	1
73383	LOCKPLATE, Alternator bracket	1
73818	GASKET, Accessory housing	1
LW-15619*	GASKET, Exhaust	12
75118*	GASKET, Exhaust flange	12
78443**	SEAL, Crankshaft oil, split	1
LW-10332	LOCKPLATE, Crankshaft gear	1
LW-12681	GASKET, Magneto	1
LW-13077	SPRING, Shroud tube	24
LW-13306	GASKET, Oil sump	1
STD-589*	GASKET	1
60096*	GASKET, Fuel pump, AC	1
MS29512-6	SEAL, Oil	1
STD-1272	GASKET	1
STD-213	SEAL	1
STD-294*	GASKET	2
20415*	GASKET	1
AN123857*	"O" RING	1
74068*	"O" RING	1
LW-15628**	SEAL, Crankshaft oil, solid	1

\* This part not applicable to AEIO-540-L1B5D.

\*\* Refer to latest edition of Service Instruction No. 1324 for installation.



**SERVICE KIT SECTION**
**CYLINDER, PISTON AND RING ASSEMBLY KIT**

Part No.	Part Name	Qty.
LW-15485	CYLINDER, PISTON AND RING KIT	1
STD-160	WASHER	4
STD-1215*	BOLT	2
STD-1411	NUT	4
STD-1925	SCREW	8
MS13997-3	KEY, Exhaust (rotator type)	2
MS13998-3	CAP, Valve stem, exhaust	1
72050	KEY, Valve intake	2
60828	PLUG, Piston pin	2
LW-18661	SEAL, Shroud tube	4
72710*	COVER, Valve rocker shaft	2
66732*	GASKET, Valve rocker shaft cover	2
67193	GASKET, Rocker box cover	1
68795	COVER ASSY., Rocker box	1
LW-14077	PIN, Piston pin	1
67112	ROCKER ASSY., Exhaust valve	1
67113	ROCKER ASSY., Intake valve	1
71481	SEAL, Cylinder base	1
71549	WASHER, Valve rocker thrust	2
72626	SHAFT, Valve rocker	2
LW-13322	SEAT, Valve spring, lower intake & exhaust	2
LW-13622	VALVE, Intake (small head)	1
73857	RING, Piston, oil regulating (chrome)	1
74241	RING, Piston compression (chrome)	2
LW-16475	SEAT, Valve spring, upper exhaust	1
69532	SEAT, Valve spring, upper intake	1
LW-10207-S	PISTON (3 ring)	1
LW-11796	SPRING, Valve outer	2
LW-11797	SPRING, Valve inner	2
LW-12993	CYLINDER ASSY., Nitrided	1
LW-11775	PLUG, Piston pin	2
SSP-2272	TAG	1
62388	CAP	1
LW-16740	VALVE, Exhaust	1

\* This part not applicable to AEIO-540-L1B5D.

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AN6-34A	Bolt	1-13	LW-12589	Insert	2-1
AN8-14A	Bolt	1-7	LW-12596	Bolt	3-1
AN814-10L	Plug	2-7	LW-12604	Nipple	6-5
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LW-25-1.13	Bolt	6-1	LW-13322	Seat	3-5
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